

STREET AND ELECTRIC RAILWAYS



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LETTER OF TRANSMITTAL.

DEPARTMENT OF COMMERCE AND LABOR,
BUREAU OF THE CENSUS,
Washington, D. C., April 21, 1910.

SIR:

The act of Congress of June 7, 1906, amendatory of section 7 of the act approved March 6, 1902, provides that statistics concerning street railways shall be collected by the Bureau of the Census at quinquennial periods. I have the honor to submit herewith the first report prepared in conformity with the requirements of this law.

The universal adoption of electricity as a motive power for street railways and the extension of these railways into rural districts make it impracticable to separate the statistics of street railways from those for the interurban railways. Therefore this report, like the report for the year ending June 30, 1902, covers all railways using electrical energy as motive power. In order to preserve the comparability of the data, the same form of schedule was used to collect statistics at both censuses, and practically the same form of presenting the data has been followed in both reports. The inquiries concerning the financial operations of the companies were in conformity with a scheme which was devised by the American Street and Interurban Railway Accountants' Association, and which has been generally adopted by the railways of the country.

The statistics were collected and the report prepared under the supervision of Mr. William M. Steuart, chief statistician for manufactures. Mr. T. Commerford Martin, of New York City, was the consulting expert special agent of the office and prepared the portion of the report dealing with the technical features of the industry. Acknowledgment should also be made of the services of Mr. William A. Hathaway, who prepared the analytical tables and verified the text.

Very respectfully,



Director of the Census.

HON. CHARLES NAGEL,
Secretary of Commerce and Labor.

STREET AND ELECTRIC RAILWAYS

PART I

STREET AND ELECTRIC RAILWAYS.

PART I.—STATISTICAL.

CHAPTER I.

SCOPE AND METHOD.

Class of railways included.—This report covers 945 street and electric railways in operation in continental United States during all or a portion of the year 1907, and three such roads in operation in Porto Rico and one in Hawaii. All railways operated exclusively by electricity, although they may be owned by steam railroads or be operating under steam-railroad charters, are included, and also the street railways operated by animal power, cable, gasoline motors, and steam. Some companies used more than one kind of power. The use of electricity by line transmission was reported by 902 companies, with 34,034.19 miles of track, while 1 company, with 22.50 miles of track, used gas-electric motors, and 1 company, with 3 miles of track, used storage batteries. The use of animal power was reported by 28 companies, with 136.11 miles of track; the use of cable by 20 companies, with 61.71 miles of track (8.96 miles of inclined plane operated by 12 companies and 52.75 miles of street cable track operated by 8 companies); and the use of gasoline motors by 5 companies, with 40.99 miles of track. Steam was used as an exclusive or auxiliary motive power by 12 companies, with 105.06 miles of track owned or leased by companies classed as "street and electric railways."

During 1907, 23 companies, with only 46.98 miles of track, reported horse cars exclusively, and 10 companies, including those operating inclined planes, with 20.70 miles of track, used the cable exclusively. All of the cars operated by gasoline motors were owned by 5 companies that used no other motive power, while only 3 companies, with 17 miles of track, reported steam as the exclusive motive power. Electricity was one of the classes of power used by every company employing more than one kind of power. Electric-railway companies owned or leased more than 65 per cent of the track used for horse cars, over 66 per cent of that operated by cable, and over 83 per cent of that operated by steam.

A number of companies that operate electric railways engage also in other business, such as the generation and sale of electric current and the manufacture and sale of gas, ice, etc.,¹ while some carry on commercial enterprises and have investments in real estate and other property not incident to the operation of the railways. The generation and sale of electricity for general commercial use is frequently so closely allied to electric-railway operations that it is impracticable to separate the statistics for the two branches of industry. In such cases the data for both branches are included in this report. If the railway company was engaged in any business foreign to the operation of the road a segregation of the statistics was required, except in the case of the capitalization, balance-sheet, and income accounts. While these three accounts represent the entire business of the respective companies, they are so arranged that it is possible to determine the extent of the interests other than those which relate to the generation and sale of electricity and the operation of the railway.

Bridge properties, tunnels, amusement parks and resorts, and turnpikes, which have been constructed or acquired by electric-railway companies, are as a rule covered by the capitalization of the railways, and statistics for them are included with those for the railways. There are several cases where properties of this character are owned by independent corporations and operated by the railway companies under a lease or contract, and in such cases the capitalization and the statistics of operation for these properties are included with those for the railways.

The report does not include statistics of ordinary steam railroads. A part or all of the trackage of a few companies is operated by both steam and electrical motive power, and some of these companies were included in the census of street and electric railways of

¹ See p. 117.

1902. By the time of the census of 1907 these mixed roads had become so numerous that it was decided to omit them as a class from the general tabulation. For the sake of comparison, however, those that were reported for 1902 were included for 1907. The following list contains the principal roads of this type that were not included in the census of 1907:

Northwestern Pacific Railroad, California.
 Los Angeles and San Diego Beach Railway, California.
 Hoboken Manufacturers Railroad, New Jersey.
 New York, New Haven and Hartford Railroad (New York Div.), New York.
 Long Island Railroad, New York.
 Bush Terminal Railroad, New York.
 Cincinnati, Georgetown and Portsmouth Railroad, Ohio.
 Felicity and Bethel Railroad, Ohio.
 Chicago, Burlington and Quincy Railroad (Deadwood Central Railroad), South Dakota.

The American Railway Traffic Company, of Brooklyn, N. Y., which owned no track but operated work cars over the track of the Brooklyn Rapid Transit system for the removal of city ashes, etc., and the Illinois Tunnel Company of Chicago, Ill., which operated small express, freight, and mail cars in subways under Chicago city, are not included in this report, because they did not engage in the general passenger and freight traffic, but were operated for a purpose different in many important respects from that of the street and electric railways. Moreover, statistics were not secured for the Pacific Coast Railway Company of California, which operated intermittently a few miles of track by electric power.

Period covered.—As a rule, the reports of the various companies cover the calendar year ending December 31, 1907, but some companies submitted data for the business year most nearly conforming to the calendar year. The reports for 318 companies were for the year ending June 30, 1907, and those for 90 companies were for the year ending September 30, 1907. Every company that was in operation during any portion of the calendar year is included, but of the 945 operating companies covered by the report, all but 55 gave statistics for the full twelve-months' period.¹

Class of companies.—Four classes of companies have been considered in collecting and compiling the statistics for street and electric railways: (1) Operating companies, (2) nonoperating lessor companies, (3) companies with roads under construction, (4) financing or holding companies.

(1) *Operating companies.*—This class includes all companies engaged in the direct operation of railway properties. Some companies operated leased property only and some operated owned property only, while others operated both owned and leased properties. There were 945 operating companies reported at the census of 1907.

(2) *Lessor companies.*—This class includes railway companies that had leased their properties to other companies for a given period at a definite rental, or under an agreement for the payment of the interest on the bonds and fixed dividends on the stock of the lessor company, or under some other arrangement that relieves the lessor of the supervision of operation. It also includes companies that had acquired franchise or other privileges and transferred them under a lease or other agreement to an operating or financing company. There were 291 lessor companies reported at the census of 1907.

(3) *Companies with roads under construction.*—This class includes companies with roads actually under construction. No road was considered as under construction unless actual grading of right of way had been started or other construction work was in progress. Companies which had only taken out incorporation papers or secured rights of way were regarded as "proposed" roads, and no statistics were secured for them. The reports of the census of 1907 showed 101 companies with roads actually under construction.

(4) *Financing or holding companies.*—This class includes companies organized for the purpose of acquiring the stock and bonds of railways for the purpose of investment. The primary object of companies of this class is to control the financial policy of the companies represented by the capitalization controlled. If a company held the stock or bonds of other companies, and also operated one or more railroads, it was classed as an "operating company" and not as a "holding company." There were 70 financing or holding companies reported at the census of 1907.

Basis of classification.—For the purpose of bringing together, as far as possible, the statistics for companies that operate under similar conditions, three main classifications have been made. The first is based upon size on the basis of income, and distinguishes five income classes. The second is on a basis of commercial lighting relations and period of operation. The third divides the total number of companies into five groups, according to the kind of system and character of service.

The first and third classifications are applied to all of the data, both physical and financial, while the second classification is applied to the financial data only. The classifications of this census are not directly comparable with those used at the census of 1902. The reason for this and the degree of comparability of the statistics at the two censuses will appear later.

Classification according to income from railway operations.—This is the principal classification adopted for this census, and embraces both the 1907 and 1902 statistics. The arrangement of the companies is according to size as measured by the gross income from railway operations. Five classes are distinguished:

¹ See p. 118.

A. Companies with a gross annual income from railway operations of \$1,000,000 and over.

B. Companies with a gross annual income from railway operations of \$500,000 but less than \$1,000,000.

C. Companies with a gross annual income from railway operations of \$250,000 but less than \$500,000.

D. Companies with a gross annual income from railway operations of \$100,000 but less than \$250,000.

E. Companies with a gross annual income from railway operations of less than \$100,000.

A grouping according to the miles of track operated, as a measure of size, would be more stable and less liable to fluctuations and changes than the grouping according to income. But the United States Interstate Commerce Commission and the public-service commissions of the state of New York have arranged for a classification of companies according to the annual operating revenue. Although this classification was arranged by them for the purpose of accounting, it has been deemed advisable to adopt the same basis of classification for the census in order to facilitate comparisons. The classes adopted by the two government commissions are shown in the following statement:

CLASSIFICATION OF ELECTRIC RAILWAYS.			
United States Interstate Commerce Commission.		Public-service commissions, state of New York.	
Class.	Annual operating revenues.	Class.	Annual gross revenue.
A	More than \$1,000,000.	A	\$500,000 and over.
B	More than \$250,000 but not in excess of \$1,000,000.	B	\$100,000 to \$500,000.
C	Not more than \$250,000.	C	Under \$100,000.

The census classification of companies enables a comparison of the statistics with the grouping devised by either of the commissions. The Census, however, does not arrange the companies according to the magnitude of their operations, because it does not consider the income from current sold for light and general commercial purposes. Of the 945 operating companies reported for 1907, 177 had electric-light departments for which statistics are included. The number of railway companies that sell current and the amounts received as income from this source are constantly increasing. The income derived by railway companies from the sale of electricity and from other enterprises, such as the manufacture of gas and the operation of ice plants and waterworks, is excluded in making the classification according to annual income from the operation of the road.

This classification by size (income) does not group the companies according to the population of cities in which operated, on account of the inclusion of so many companies doing an interurban business. Only for Classes A and E can it be fairly assumed that they represent urban companies—A, the companies in large

urban centers, and E, the companies in the smaller cities and towns. Of the 77 companies that make up Class A for 1907, there are only 10 that can be regarded as purely interurban. These 10 companies contributed 17.3 per cent of the trackage reported by all companies of Class A, only 2.9 per cent of the passengers, and 5.6 per cent of the income. Thus, aside from trackage, these 10 interurban companies are relatively insignificant and, with the exception of results based upon trackage, their inclusion in the class does not materially affect the statistics.

The preponderance of large urban companies in Class A is illustrated by the urban centers represented:

San Francisco.	Newark (N. J.).
Denver.	Jersey City.
New Haven (Conn.).	New York City.
District of Columbia.	Buffalo.
Atlanta.	Cincinnati.
Chicago.	Cleveland.
Louisville (Ky.).	Portland (Oreg.).
New Orleans.	Philadelphia.
Baltimore.	Pittsburg.
Boston.	Providence (R. I.).
Detroit.	Memphis.
Minneapolis and St. Paul.	Seattle.
St. Louis.	Milwaukee.
Kansas City (Mo.).	

Classification according to commercial lighting relations and period of operation.—At the census of 1902 the class "electric surface railways" under the general classification according to power used, was subdivided into three groups—"Without commercial lighting," "With commercial lighting," and "Part-time." This grouping was shown in the chapters treating of traffic, capitalization, and financial operations.

A combination of the statistics for companies engaged in commercial lighting and those for companies that did not sell current gives results which, from a railway standpoint at least, are unsatisfactory and to a certain extent misleading, especially in the case of some of the financial accounts. The financial accounts of companies whose operations were reported for less than a year also are not strictly comparable with those of companies operating during the entire year. While the general classification according to power, which was made in 1902, was abandoned at this census, a separation of the statistics for both 1907 and 1902, for companies with respect to commercial lighting and part-time, has been made in the chapter relating to financial operations. The 1907 classification groups—"Without commercial lighting," "With commercial lighting," and "Part-time"—differ from those in 1902 only in that no distinction as to the kind of power used has been made at the census of 1907. Thus the group of companies "Without commercial lighting" for 1907 includes all full-time railways not regularly engaged in the commercial light and power business.

Classification according to kind of system.—The installation of electric power for street-railway trac-

tion, which began in 1884, had already become an important factor by 1890, when the first census of street railways was taken; during the period intervening between the censuses of 1890 and 1902, the great majority of the roads that used power other than electric in 1890 adopted electricity as their motive power, and practically all roads built during that period used some form of electric traction. During the same period, moreover, electricity was substituted for the cable system, which had been first introduced in 1873 and which had promised for a time to become the preferred power for roads operating on grades and in territory where the density of traffic justified the heavy cost of installation. By 1902 the transformation had become practically complete, power other than electricity being then in use on only 3 per cent of the total trackage in operation.

At the census of 1902 detailed statistics were presented for the street railways operated by animal power, by cable, and by steam, as well as for the roads electrically operated, in order that such statistics might be compared with similar data for 1890 and that the extent of the change in motive power which had taken place during the intervening period, might be shown. But since the trackage operated by power other than electricity, already so small in 1902, had become even smaller by 1907, forming only 1 per cent of the total in that year, it has been thought inadvisable to carry the classification by character of power into the main tables.

By 1907 the one steam road included in the 5 companies that were classed as "steam and electric elevated" at the census of 1902, had abandoned the use of steam as a motive power. Moreover, the subway had gone into operation in New York City, operated by the same company that operated the elevated lines. A change in classification, therefore, became necessary. A group of "Electric elevated and subway railways," including only those whose elevated or subway trackage exceeds their surface trackage, assembles in one class all roads (except the mixed elevated, surface, and subway systems, in Boston, Mass., and Philadelphia, Pa.) whose chief service was in districts of high traffic density and on "ways" from which the general public were excluded, and gives a group which can fairly be contrasted with the electric surface railways, or all roads where surface tracks predominate. A classification of the statistics for 1907 only is therefore presented on these lines.

The group of "Electric elevated and subway railways" includes for 1907, 2 companies that reported 67.34 miles of elevated track, 3 companies that reported 128.45 miles of elevated and 34.08 miles of surface track, and 1 company that reported 118.05

miles of elevated and 72.48 miles of subway track. Thus there was for this class an aggregate of 6 operating companies, with 386.32 miles of elevated and subway track and 34.08 miles of surface track, or a total trackage of 420.40 miles included in the group.

The group of "Electric surface railways," on the other hand, includes 939 operating companies, with 33,983.16 miles of track, the same including the small amounts of trackage operated by power other than electric and small portions of elevated and subway and tunnel trackage operated in connection with surface tracks.

Classification according to character of service.—At the census of 1902 urban roads were subclassified into four groups, according to the population of the districts served. This classification developed a number of instructive facts, and it was desired to retain it in the census of 1907. It happens, however, the consolidation of companies, which was referred to in the census of 1902, has continued increasingly to characterize the development of electric railways and has brought under the same ownership such a large number of properties that were formerly operated as independent units that it has become practically impossible to segregate the statistics so as to present the data for specified urban districts.

There is no sharp line of demarcation between urban and interurban roads which will permit of the classification of all roads as urban or interurban. Many roads primarily urban do a large interurban business also, and vice versa, and in some cases where, although the interurban trackage exceeds the urban trackage, the volume of traffic in the urban territory exceeds that between the connecting cities and towns. It has therefore been decided to abandon the presentation of the statistics for all roads according to the population of the districts served, and to make no attempt to classify all of the roads as urban, interurban, or mixed urban and interurban. Instead of these classifications, statistics, for 1907 only, for 50 "Selected interurban lines" and for 100 "Selected small urban roads" are presented. The 100 roads which make up the latter group each had an annual income of less than \$25,000. Their operations, however, were not, in all cases, confined to the municipal limits of the cities or towns in which they operated. These two groups represent the two most widely separated classes of roads in so far as the class of service is concerned. The large number of roads between these two extremes can be assigned to no distinctive class as regards character of service, and consequently such roads have been grouped under the indefinite heading "All other railways."

CHAPTER II.

COMPARISON WITH CENSUSES OF 1902 AND 1890.

The two prior censuses of street railways covered the twelve months ending with June 30, for the years 1890 and 1902, respectively. Since 1890 the scope of the inquiry has been broadened to meet the changes incident to the more general use of electricity as a motive power, and the interests represented by the totals for 1907 differ in many important respects from those covered by the figures for the earlier censuses. In 1890 practically all railways, except those operated by steam, were correctly designated "street railways," as they were confined mainly to urban districts and operated on public streets. Many roads now included in the class of "street and electric railways" extend into rural districts and engage in business similar to that of regular steam railroads. It is impracticable to segregate the data for 1907 so as to obtain statistics for the trackage located in urban districts, although such statistics would be more directly comparable with the totals for 1890; therefore the totals for all roads included in each census are given in the comparative tables.

Increase since 1890.—Comparisons between the statistics for the street railways in continental United States at the three censuses must be made with great caution. In 1890 only 706 out of the 789 street railways in the country made reports to the Census Office. The figures of trackage, cost of construction, number of cars, number of employees, and number of passengers for the remaining 83 companies were either obtained from outside sources or estimated. The figures

secured from sources other than certified returns constituted from 4.2 to 10.4 per cent of the totals for the respective items mentioned. The returns of earnings and expenditures and of car mileage were incomplete, even in the case of many of the companies which reported fully other statistics; but these returns were not supplemented by estimates, so that the figures given as totals represent from 10 to 20 per cent less than the actual totals for all companies.

The returns for 1902 were much more nearly complete than those for 1890, as in the later year all but 2 companies covered by the statistics furnished certified returns, and in most cases all inquiries in the schedule were answered. Of the operating and lessor companies included in the census of 1902, only 20 failed to report the cost of construction, and of the operating companies, only 20 failed to furnish statistics of employees, 6 of fare passengers, and 18 of earnings and expenses. Moreover, 2 of the 6 companies that did not report the number of fare passengers were exclusively freight companies.

The statistics for 1907 represent operating companies whether they were in operation during the whole year or only a portion of the year. Six operating companies, however, failed to report financial data. (See Table 86.) While the totals for the three censuses have been made, as nearly as possible, directly comparable, there are some defects in the comparison which will be more fully explained in subsequent chapters.

TABLE 1.—COMPARATIVE SUMMARY: 1890 TO 1907.

	CENSUS.			PER CENT OF INCREASE.		
	1907	1902	1890	1902 to 1907	1890 to 1902	1890 to 1907
Number of companies.....	1,236	987	789	25.2	25.1	56.7
Operating.....	945	817	709	15.7	6.2	22.9
Lessor.....	291	170	20	71.2	750.0	1,355.0
Miles of line ¹	25,747.19	*16,645.34	5,783.47	53.5	187.8	341.7
Miles of track ²	34,803.59	22,576.99	8,123.02	52.4	177.9	323.5
Operated by electricity.....	31,069.69	*21,907.59	1,761.97	55.5	1,636.0	2,598.9
Operated by animal.....	136.11	259.10	5,661.44	*47.5	*95.4	*97.6
Operated by cable.....	61.71	240.89	488.31	*74.4	*50.7	*187.4
Operated by steam.....	*146.05	169.61	711.30	*13.9	*76.2	*79.5
Cost of construction and equipment.....	\$3,637,698.708	\$2,167,634.077	\$390,357.249	67.8	456.7	834.3
Number of employees.....	221,429	140,709	70,764	67.3	98.9	212.0
Number of passenger cars.....	70,016	60,290	32,565	16.1	85.5	115.4
Number of fare passengers.....	7,441,114,504	4,774,211,904	2,023,010,302	55.9	136.0	267.8
Number of fare passengers per mile of track.....	*216.522	*212.217	249.047	2.0	*14.8	*13.1
Per cent ratio of operating expenses to operating earnings.....	60.1	57.5	68.4			

¹ By "Miles of line," as used throughout this report, is meant length of first main track or roadbed. By "Miles of track" is meant total length of all trackage, including Mings. Thus, in the case of a double road, "Miles of track" would be double "Miles of line."

² Exclusive of 6.24 miles of duplicated line.

³ Includes 6.06 miles operated by compressed air.

⁴ Decrease.

⁵ Includes 40.99 miles operated by gasoline motors.

⁶ Exclusive of trackage of one railway carrying freight only and track not operated.

⁷ Exclusive of trackage of two railways carrying freight only and four companies not reporting fare passengers.

STREET AND ELECTRIC RAILWAYS.

TABLE 2.—COMPARATIVE SUMMARY, BY

DIVISION.	Census.	Miles of track.	MILES OF LINE.				
			Total.	Electric.	Animal.	Cable.	Steam.
United States.....	1907	34,403.56	25,547.19	25,260.50	90.15	32.14	1134.97
	1902	22,576.99	16,645.34	16,224.48	195.21	113.53	111.82
	1890	8,123.02	5,783.47	914.25	4,061.94	283.22	324.06
Increase.....	1902 to 1907	11,826.57	8,901.85	9,035.55	105.06	181.79	23.15
	1900 to 1902	14,453.97	10,861.87	15,310.13	1,698.73	109.29	412.24
Per cent of increase.....	1902 to 1907	52.4	53.5	55.9	153.8	71.7	21.7
	1900 to 1902	177.9	187.8	1,674.6	195.2	59.8	78.7
North Atlantic.....	1907	13,713.37	10,154.41	10,087.05	52.32	2.84	12.17
	1902	10,164.80	7,667.19	7,573.98	66.02	5.50	31.34
	1890	2,951.85	2,083.94	273.22	1,658.51	47.27	84.94
Increase.....	1902 to 1907	3,548.48	2,487.22	2,513.10	13.70	2.65	39.52
	1900 to 1902	7,213.04	5,633.25	7,300.76	1,592.49	41.77	23.25
Per cent of increase.....	1902 to 1907	34.9	31.9	33.2	20.8	48.4	76.5
	1900 to 1902	244.4	272.9	2,672.1	195.0	88.4	39.1
South Atlantic.....	1907	2,300.73	1,717.22	1,700.09	5.38	.....	2.75
	1902	1,670.15	1,195.29	1,182.04	13.25	.....	.....
	1890	611.96	465.63	83.55	307.49	3.70	71.16
Increase.....	1902 to 1907	630.58	521.93	517.05	17.87	.....	2.75
	1900 to 1902	1,058.19	729.36	1,086.46	294.24	13.70	71.16
Per cent of increase.....	1902 to 1907	37.8	43.7	44.6	52.4	.....	.....
	1900 to 1902	172.9	156.5	1,314.3	195.7	100.0	100.0
North Central.....	1907	12,850.53	9,832.71	9,795.15	20.05	2.51	105.00
	1902	7,815.32	5,630.38	5,523.07	50.91	56.40	29.00
	1890	2,753.57	1,867.93	384.56	1,229.90	129.09	123.78
Increase.....	1902 to 1907	5,035.21	4,202.33	4,182.08	30.86	53.99	105.00
	1900 to 1902	5,061.75	3,762.45	5,138.51	1,179.00	73.29	123.78
Per cent of increase.....	1902 to 1907	64.4	74.6	75.7	60.6	95.5	.....
	1900 to 1902	183.8	201.4	1,326.2	195.9	86.5	100.0
South Central.....	1907	1,905.91	1,411.17	1,393.65	7.44	.88	9.00
	1902	1,322.45	1,007.10	1,000.45	17.75	.90	29.00
	1890	968.67	773.05	81.63	589.83	.....	.....
Increase.....	1902 to 1907	583.46	404.07	434.49	10.31	1.02	30.00
	1900 to 1902	353.78	234.05	877.82	542.06	.90	102.39
Per cent of increase.....	1902 to 1907	44.1	40.1	45.3	58.1	2.2	69.0
	1900 to 1902	36.5	30.3	1,075.4	196.8	.....	78.0
Western.....	1907	3,633.02	2,431.68	2,394.70	4.96	25.91	6.05
	1902	1,604.19	1,115.39	965.84	47.29	51.13	31.12
	1890	836.97	612.62	61.29	309.21	102.56	112.59
Increase.....	1902 to 1907	2,028.84	1,316.29	1,408.92	42.32	25.22	25.06
	1900 to 1902	767.21	502.76	894.38	258.13	51.43	81.46
Per cent of increase.....	1902 to 1907	128.5	118.0	142.9	89.5	49.3	80.6
	1900 to 1902	91.7	82.1	980.2	184.6	50.1	72.4

¹ Includes 38.61 miles operated by gasoline motors.

² Exclusive of 12.48 miles of duplicated track.

³ Exclusive of 6.24 miles of duplicated line, but includes 5.50 miles operated by compressed air.

⁴ Decrease.

⁵ Includes 96,306,157 free passengers.

COMPARISON WITH CENSUSES OF 1902 AND 1890.

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GEOGRAPHIC DIVISIONS: 1890 TO 1907.

DIVISION.	Census.	Number of passenger-cars.	NUMBER OF PASSENGERS.			Cost of construction and equipment.	Number of employees.
			Total.	Fare.	Transfer.		
United States.....	1907	70,016	9,533,080,768	7,441,114,506	^b 2,091,966,258	^c \$3,637,668,708	^e 221,429
	1902	60,290	5,836,615,296	^d 4,774,211,904	1,062,403,392	^f \$2,167,634,077	^f 140,769
	1890	32,535	2,023,010,202	2,023,010,202	(^g)	\$380,357,289	70,764
Increase.....	1902 to 1907	8,726	3,696,465,470	2,666,902,604	1,029,562,866	\$1,470,034,631	80,660
Per cent of increase.....	1890 to 1902	27.785	3,813,605,094	2,751,301,702		\$1,778,278,788	70,005
	1902 to 1907	16.1	63.3	55.9	96.9	67.8	57.3
	1890 to 1902	85.5	188.5	136.0		456.7	98.9
North Atlantic.....	1907	35,379	4,648,001,271	3,714,134,698	933,866,583	\$1,552,220,534	107,003
	1902	31,319	3,137,006,901	2,618,528,979	518,567,922	\$1,098,932,237	75,928
	1890	14,651	1,141,187,400	1,141,187,400	(^h)	\$190,404,200	37,412
Increase.....	1902 to 1907	4,060	1,510,994,370	1,095,605,719	415,388,661	\$453,288,297	31,075
Per cent of increase.....	1890 to 1902	16.908	1,005,900,441	1,477,341,519		\$899,526,037	38,516
	1902 to 1907	13.0	48.2	41.8	80.1	42.5	41.7
	1890 to 1902	113.8	174.9	129.5		446.1	103.0
South Atlantic.....	1907	5,414	622,578,893	487,981,526	134,597,365	\$242,357,060	15,044
	1902	4,290	375,902,490	297,196,541	78,705,955	\$162,507,589	9,839
	1890	1,702	101,647,174	101,647,174	(ⁱ)	\$16,125,071	4,139
Increase.....	1902 to 1907	1,124	246,676,397	190,784,987	55,892,410	\$79,850,380	5,205
Per cent of increase.....	1890 to 1902	2.588	274,256,322	195,551,367		\$146,381,918	5,700
	1902 to 1907	26.2	65.6	64.2	71.0	49.1	52.9
	1890 to 1902	152.1	266.8	192.4		907.8	137.7
North Central.....	1907	20,959	2,070,482,091	2,223,525,349	746,956,742	\$1,251,383,729	65,930
	1902	18,643	1,707,542,180	1,344,000,951	363,541,229	\$705,553,933	39,405
	1890	11,335	538,309,897	538,309,897	(^j)	\$110,741,609	20,314
Increase.....	1902 to 1907	2,316	1,262,939,911	879,524,398	383,415,513	\$545,829,796	26,515
Per cent of increase.....	1890 to 1902	7.304	1,169,232,293	805,691,064		\$594,812,324	19,091
	1902 to 1907	12.4	74.0	65.4	103.5	77.4	67.3
	1890 to 1902	64.5	217.2	149.7		537.1	94.0
South Central.....	1907	3,801	504,100,344	414,225,626	89,874,618	\$203,065,871	13,053
	1902	2,097	234,315,915	210,161,861	24,212,054	\$87,294,862	6,731
	1890	2,342	98,005,026	98,005,026	(^k)	\$24,602,138	3,480
Increase.....	1902 to 1907	794	269,784,329	204,121,765	65,662,564	\$115,791,009	6,322
Per cent of increase.....	1890 to 1902	695	139,310,889	112,098,825		\$62,662,724	2,901
	1902 to 1907	26.4	115.1	97.2	271.2	132.6	93.9
	1890 to 1902	28.4	130.1	114.4		254.8	75.7
Western.....	1907	4,463	787,828,267	601,247,317	186,580,950	\$396,620,605	19,809
	1902	3,031	381,757,804	304,379,572	77,378,232	\$123,345,456	8,866
	1890	2,475	143,969,655	143,969,655	(^l)	\$38,483,671	3,009
Increase.....	1902 to 1907	1,432	406,070,463	296,867,745	109,202,718	\$265,275,149	10,943
Per cent of increase.....	1890 to 1902	556	237,887,149	160,518,917		\$84,861,786	3,797
	1902 to 1907	47.2	165.4	97.5	141.1	215.1	123.4
	1890 to 1902	22.5	165.4	111.6		220.5	74.9

^a Of the 1,236 companies, 1,230 reported the cost of construction and equipment; while of the 945 operating companies, 939 reported the number of employees.^b Of the 987 companies, 967 reported the cost of construction and equipment; while of the 817 operating companies, 797 reported the number of employees and 811 the number of fare passengers carried.^c Not reported separately; generally, the number of passengers reported for 1890 represented fare passengers only, though in some cases the total of fare and transfer passengers was reported.

The total trackage shown in the tables throughout this report represents the mileage owned or leased by companies in continental United States. In a few instances the track extends across the border line into Canada and Mexico, so that the totals for 1907 and 1902 include 27.52 and 4.20 miles, respectively, lying outside the United States. Table 7 shows the net trackage in each state and the United States.

The increase for the street and electric railways between 1890 and 1907 is remarkable; while the increase may be slightly exaggerated as a result of the failure of some of the companies to make complete reports at the census of 1890, these omissions are partly offset by the small percentage of defective reports received at the censuses of 1902 and 1907.

As indicated by Table 2, the increase has been more pronounced in some sections of the country than in others.

TABLE 3.—Comparative summary: 1907 and 1902.

	1907	1902	Percent of increase.
Number of operating and lessor companies.....	1,236	987	25.2
Miles of line.....	25,547.19	116,643.34	53.5
Miles of track.....	34,403.56	22,576.99	52.4
Number of cars.....	83,641	66,744	25.2
Passenger.....	70,016	60,280	16.1
All other.....	13,625	6,464	108.8
Number of power houses.....	820	805	3.0
Steam and gas engines and steam turbines:			
Number.....	2,552	2,351	8.6
Horsepower.....	2,384,519	1,300,058	82.4
Water wheels:			
Number.....	228	159	42.4
Horsepower.....	91,991	49,153	87.1
Kilowatt capacity of dynamos.....	1,723,416	898,302	91.8
Output of stations, kilowatt hours, total for year.....	4,759,130,100	2,261,484,307	110.4
Number of passengers, total.....	9,333,080,706	5,836,035,296	63.3
Fare.....	7,441,114,508	4,774,211,904	55.9
Transfer.....	1,995,658,101	1,062,403,392	87.8
Free.....	99,308,157	(¹)	
Car mileage (passenger, express, freight, mail, etc.).....	1,617,731,300	1,144,620,466	41.4
Condensed income account, operating companies:			
Gross income.....	\$429,744,254	\$250,504,027	71.6
Operating earnings.....	\$418,187,838	\$247,553,999	68.9
Income from other sources.....	\$11,556,396	\$2,950,028	291.7
Operating expenses.....	\$231,300,252	\$142,812,507	76.6
Net earnings (earnings less operating expenses).....	\$196,878,606	\$105,241,492	58.6
Gross income less operating expenses.....	\$178,435,002	\$108,192,030	64.9
Deductions from income (taxes and fixed charges).....	\$138,094,710	\$77,595,053	78.0
Net income.....	\$40,340,292	\$30,596,977	31.8
Dividends (operating companies only).....	\$20,454,732	\$15,882,110	66.6
Surplus.....	\$19,885,554	\$14,714,867	55.6
Capitalization operating and lessor companies:			
Capital stock authorized, par value.....	\$2,508,054,336	\$1,529,199,589	64.0
Capital stock outstanding, par value.....	\$2,097,708,856	\$1,315,572,940	59.5
Dividends on stock, amount.....	\$54,485,274	\$33,039,121	64.9
Funded debt authorized, amount.....	\$2,322,739,837	\$1,341,429,727	73.2
Funded debt outstanding, amount.....	\$1,677,063,240	\$822,709,130	64.9
Interest on funded debt.....	\$71,448,788	\$43,574,961	64.0
Total capitalization outstanding.....	\$3,774,772,066	\$2,308,282,090	63.5
Employees and wages, operating companies:			
Salaried employees—			
Number.....	11,700	7,128	64.1
Salaries.....	\$12,909,496	\$7,439,716	73.5
Wage-earners—			
Average number.....	209,729	133,641	50.9
Wages.....	\$138,081,633	\$80,770,449	71.0

¹ Exclusive of 6.24 miles of duplicated line.

² Exclusive of current purchased from stations not operated by electric railways.

³ Not reported separately.

⁴ Decrease.

Tables 1 and 2 cover virtually all of the statistics in the report of 1890 with which direct comparison can be made for 1902 and 1907. In the taking of the last two censuses, however, the same schedule and methods were used, and therefore it is possible to make more detailed comparisons of the statistics presented for the years covered by those censuses, which is shown in Table 3.

With a few exceptions the percentages of increase are remarkably uniform, and indicate a large growth between the two censuses. The unusual increase in the number of cars other than those for passengers is accounted for by the rapid development of freight business on interurban lines, while the very large gain in the output of stations is due largely to the increasing practice among railway companies of operating electric light and power departments. The item of income from other sources than earnings from operation comprises interest and dividends on securities of other electric railways, income from other permanent investments, and income from miscellaneous sources, such as interest on deposits and rentals from real estate. The high percentage of increase in income from such sources reflects the extent to which electric railways have become interested in these miscellaneous interests.

Number of companies.—Of the 945 operating and the 291 lessor companies in 1907, 277 operating and 81 lessor companies were not reported at the census of 1902. While the majority of these companies were new projects, some were not new properties, but were steam railroads which, already in existence in 1902, were electrified during the five years between the censuses. It is impossible in all cases to trace clearly the history of the companies reported in 1907, and it is possible that a few of the new companies may have been formed by the consolidation of existing railways. Again, other companies organized with entirely new equipment during the quinquennial period were consolidated with or absorbed by companies that were in existence in 1902. In a number of cases companies were reorganized and given new names, while in other cases combinations were made by lease, purchase of stock, or other arrangement. Similar changes were in progress during the period between 1890 and 1902. The changes resulted in a net increase of 128 in the number of operating companies between 1902 and 1907 and a net increase of 176 between 1890 and 1907. With the exception of new companies, the change in the number is due almost entirely to combinations and separations. There are comparatively few cases where the equipment of a road has been abandoned or sold to be moved elsewhere.

The increase in the number of lessor companies is significant, as it indicates the development of large

controlling companies that bring under a central management properties formerly operated as independent units. At the census of 1907 the roads owned by the 291 lessor companies were operated by 102 lessees, there being on the average 2.9 lessors to each lessee. At the census of 1902 there were 170 lessors operated by 56 lessees, or an average of 3 lessor properties to each lessee. But the majority of the lessees also operated properties other than those controlled by lease.

Railways under construction.—In addition to the operating and lessor companies, 101 companies were reported at the census of 1907 as having properties under construction and not in operation during any portion of the census year.

A large number of projected roads had companies in different stages of formation, but these roads were not included in the census. While it is possible that the number of companies reported as having roads under construction does not include all of the companies of this class, the figures are of interest since they indicate approximately the amount of new development work which was in progress during the census year.

The 101 companies with roads under construction reported 675.85 miles of track as completed by December 31, 1907, and an estimated total of 3,101.30 miles of track for the roads when completed. Their capitalization consisted of common stock, \$225,106,500 authorized and \$116,567,928 outstanding; preferred stock, \$23,100,000 authorized and \$7,265,916 outstanding; funded debt, \$255,053,000 authorized and \$108,465,000 outstanding. Thus the total outstanding capitalization had a par value of \$232,298,844. A large percentage of this outstanding capitalization is represented by the securities of the Hudson and Manhattan Railroad Company of New York. The properties of this company comprise the Hudson River tunnel system, which was opened for operation early in 1908.

Reports for companies with roads under construction were not secured at the census of 1902, and consequently the figures relating to such companies for 1907 have been excluded from all tables in this report.

Several companies, principally in Ohio, which were reported as under construction in 1907 and included in the 101 companies, had completed so small a portion of the total proposed mileage that they were not outlined on the map¹ showing operating roads and roads under construction.

Increase in size of companies.—There is no uniformity in the size or importance of the properties represented by the separate companies, and frequently, because of certain legal restrictions, several properties that practically formed one system have been reported as distinct units and counted as separate companies, while, on the other hand, where legal conditions did not prohibit, several properties have been reported

in combination and counted as one. The combination of formerly independent companies has characterized the development of electric railways during recent years, and the change in the number of companies reported at the different censuses is no indication of the increase or decrease in the industry.

Table 4 shows the average size and traffic of the operating companies at the censuses of 1907, 1902, and 1890, and gives the percentage of increase for the census periods.

TABLE 4.—Comparative size of operating companies: 1890 to 1907.

	AVERAGE PER OPERATING COMPANY. ¹			PER CENT OF INCREASE.		
	1907	1902	1890	1902 to 1907	1890 to 1902	1890 to 1907
Miles of track.....	36.41	27.63	10.56	31.8	161.8	244.8
Number of passenger cars..	74	74	42	76.2	76.2	76.2
Number of fare passengers..	7,682,537	5,998,821	2,630,702	33.9	123.4	199.6
Number of employees.....	236	177	92	33.3	92.4	156.5

¹ In 1907, 945 companies reported track; 944, fare passengers; and 930, number of employees. In 1902, 817 companies reported track; 811, fare passengers; and 797, number of employees. In 1890 the number of operating companies reporting was 790, and this number has been used in the computations for that census.

It is probable that combination is the most important factor tending to increase the size of the units counted as separate companies by the census, although many railways extended their tracks and made material increases in the magnitude of their operations during the periods between the censuses. The figures indicate that, measured by trackage, the average operating company reported at the census of 1907 was about three and one-half times as large as the average company at the census of 1890. It will be noted that the average number of passenger cars per operating company was the same at the censuses of 1907 and 1902, this being a result of the general use of larger cars at the later census. The average number of fare passengers per car per year was 106,277 at the census of 1907, compared with 79,187 for 1902 and 62,237 for 1890. This shows an increase in the average number of fare passengers per car of 34.2 per cent for the census interval 1902 to 1907, 27.2 per cent for the period 1890 to 1902, and 70.8 per cent for the entire period 1890 to 1907.

The increase in the average size of companies, reduced to a yearly basis, was materially greater for the census interval 1902 to 1907 than it was for the period 1890 to 1902, though on a percentage basis the rate of increase was larger for the earlier period. For the five-year period 1902 to 1907 the average yearly increase of track per company was about 1½ miles compared with an average yearly increase for the twelve-year period 1890 to 1902 of approximately 1¼ miles; and the average increase in number of fare passengers per year per company for the five-year period 1902 to 1907 was 399,143, compared with an average yearly increase of 271,343 for the twelve-year period 1890 to 1902.

¹ See Map 3, facing page 264.

The increase in the size of companies is further illustrated by Table 5, which classifies the operating companies according to miles of line. The miles of line is the length of the first main track or roadbed and does not include second tracks and sidings.

TABLE 5.—Distribution of operating companies according to miles of line: 1890 to 1907.

MILES OF LINE.	1907		1902		1890	
	Number of companies.	Miles of line.	Number of companies.	Miles of line.	Number of companies.	Miles of line.
Total.....	945	25,547.19	817	16,645.34	601	5,110.53
Under 10.....	399	2,012.37	394	1,957.16	557	2,304.49
10 but under 20.....	229	3,292.58	219	3,147.23	99	1,353.42
20 but under 30.....	101	2,483.96	76	1,878.54	16	499.39
30 but under 40.....	61	2,088.58	34	1,197.43	7	251.74
40 but under 50.....	33	1,472.21	25	1,117.05	1	178.04
50 but under 60.....	27	1,467.71	16	988.33	2	101.47
60 but under 70.....	16	1,032.65	12	783.22	2	130.33
70 but under 80.....	17	1,279.94	7	532.46	1	76.49
80 but under 90.....	7	548.18	6	515.30	1	84.42
90 but under 100.....	8	768.85	3	277.12	.....	.....
100 and over.....	47	9,002.16	25	4,349.10	2	228.65

¹ Exclusive of 6.24 miles of duplicated line.

² Exclusive of 78 companies that did not make precise returns of trackage.

³ Exclusive of 663.94 miles, estimated.

In 1890 four-fifths of the companies making trackage returns had less than 10 miles of line each; in 1902 slightly less than one-half of the operating companies were in this group; and in 1907 companies of this size formed only a little more than two-fifths of the total number of operating companies. The companies whose lines were under 50 miles represented 98.8 per cent of the total number of companies in 1890, 91.6 per cent in 1902, and 87.1 per cent in 1907, while the proportion that the miles of line of these companies formed of the total miles of line shows a still greater rate of decrease, the percentages for the corresponding periods being 87.7, 55.9, and 44.4. The average length of line per company in 1890 was 7.4 miles; in 1902, 20.4 miles; and in 1907, 27 miles, or almost four times the average for the earliest census. At the last census 47 companies had 100 or more miles of line each, compared with 25 in 1902 and only 2 in 1890. The average length of line of these companies increased from 119.3 miles in 1890 to 174 miles in 1902 and to 192.8 miles in 1907.

Increase in trackage and change in motive power.—Between 1890 and 1907 the miles of track of street and electric railways increased 26,280.54 miles. The increase was, of course, greater during some years than others, but for the period of twelve years from 1890 to 1902 there was a total increase of 14,453.97 miles, giving an average of 1,204.5 miles for each year. For the five years ending with 1907 there was a total increase of 11,826.57 miles, or an annual average of

2,365.31 miles. The annual increase derived from a comparison of trackage by years indicates that the greatest development occurred during the year 1906.¹

Table 2 shows that from 1890 to 1907 the miles of line increased 19,763.72 miles, and that during each of the periods between the three censuses the percentage of increase for miles of line was greater than the percentage of increase for miles of track. This is due to the fact that a large proportion of the recent extensions consists of single-track roads operating in small towns and rural districts. During the period from 1890 to 1902 the largest percentage of increase in trackage was for the North Atlantic states, but during the five years ending with 1907 the largest percentage of increase was for the Western states. In the last-named section the interurban roads have developed very rapidly since the latter part of the decade ending with 1900.

The increase in trackage and line has been almost entirely on lines employing electricity as the motive power, as there has been a decided decrease in the track operated by the other kinds of power. In 1890 only 126 out of 706 companies reported the use of electricity on any portion of the road, 99 employing this form of power exclusively and 27 using it in conjunction with animal or cable power. By 1907 electric power had become almost universal, all but 41 companies reporting it as in use on all or a portion of the track.

Table 6 shows conclusively that by 1907 electricity had about superseded all other kinds of motive power. The percentage of total trackage operated by electric current increased from 15.5 in 1890 to 99 in 1907. Animal power was the most important form of power in 1890, being in use on 69.7 per cent of the total trackage; by 1907, however, the proportion of track-

¹ The following statement, compiled by the Electric Railway Journal, shows the total miles of track for each year from 1890 to 1907. The totals for 1890, 1902, and 1907 are not comparable with the figures obtained by the censuses for those years because there were fewer restrictions in regard to the class of companies included in the statistics presented in the Journal than in those for the census. The table, however, shows the years in which the greatest development occurred.

Miles of track, by years: 1890 to 1907.

YEAR.	Miles of track.	YEAR.	Miles of track.
1890.....	38,812	1898.....	17,549
1900.....	30,932	1897.....	15,718
1907.....	32,517	1896.....	15,004
1904.....	20,548	1895.....	14,470
1903.....	27,920	1894.....	13,598
1902.....	26,292	1903.....	12,187
1901.....	23,184	1902.....	11,624
1900.....	20,412	1901.....	10,569
1899.....	18,942	1890.....	8,123

age operated by animal power had decreased to four-tenths of 1 per cent. Cable and steam power were never used very extensively in the operation of street railways, but they assumed their greatest importance about 1890, when the cable system was used in the operation of 6 per cent and steam in the operation of 8.8 per cent of the trackage. At the census of 1907 these kinds of power, with the exception of cable power on inclined planes, had been practically abandoned and the use of compressed air, which was reported for 6.06 miles of track in 1902, had also been discontinued. In 1907, however, gasoline motor cars were operated on 40.99 miles of track and gas-electric motors were employed on 22.50 miles of track, electric power being generated by a gasoline motor and dynamo carried by the car.

TABLE 6.—Miles of track, by character of power: 1890 to 1907.

CHARACTER OF POWER.	CENSUS.			PER CENT OF TOTAL.		
	1907	1902	1890	1907	1902	1890
Total.....	34,403.56	22,576.99	8,123.02	100.0	100.0	100.0
Electric.....	34,059.69	21,907.50	1,261.97	99.0	97.0	15.3
Animal.....	130.11	259.10	5,461.44	0.4	1.1	69.7
Cable.....	61.71	240.09	488.31	0.2	1.1	6.0
Steam.....	² 174.05	169.61	711.30	0.4	0.8	8.8

¹ Includes 6.06 miles operated by compressed air.

² Includes 40.99 miles operated by gasoline motors.

The changes from 1902 to 1907 in the mileage of track operated by electric, animal, cable, and steam power and in the number of companies reporting the same are shown, by states and geographic divisions, in Table 7.

TABLE 7.—MILES OF TRACK, BY CHARACTER OF POWER, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	TOTAL.		ELECTRIC.			ANIMAL.		CABLE.		STEAM.	
		Trackage of companies in state.		Number of operating companies reporting—		Miles of track.	Number of operating companies reporting—		Number of operating companies reporting—		Number of operating companies reporting—	
		Net trackage in state (miles).	Miles.	Electric track-age.	Electric track-age exclusively.		Animal track-age.	Animal track-age exclusively.	Cable track-age.	Cable track-age exclusively.	Steam track-age.	Steam track-age exclusively.
United States.....	1907	34,376.04	945	34,403.56	904	34,059.69	28	23	20	10	17	18
	1902	22,572.79	817	22,576.99	748	21,907.50	67	53	20	12	13	3
North Atlantic division....	1907	13,763.34	370	13,713.37	361	13,594.70	8	5	6	4	5	.....
	1902	10,180.13	361	10,164.89	343	9,933.37	15	10	11	8	3	.....
Maine.....	1907	418.12	17	424.06	16	421.06	1	1	.....	.....	.....	.....
	1902	328.50	19	331.55	18	328.55	.....	.....	.....	.....	.....	.....
New Hampshire.....	1907	268.38	16	247.10	16	247.10	.....	.....	.....	.....	.....	.....
	1902	174.45	7	167.65	7	167.65	.....	.....	.....	.....	.....	.....
Vermont.....	1907	113.38	10	124.31	10	124.31	.....	.....	.....	.....	.....	.....
	1902	86.05	9	80.55	9	80.55	.....	.....	.....	.....	.....	.....
Massachusetts.....	1907	2,890.46	63	2,896.85	63	2,896.42	.....	.....	.....	.....	1	.....
	1902	2,507.58	75	2,535.65	75	2,535.65	.....	.....	.....	.....	.....	.....
Rhode Island.....	1907	430.76	6	419.92	6	419.92	.....	.....	.....	.....	.....	.....
	1902	342.92	8	328.90	8	328.90	.....	.....	.....	.....	.....	.....
Connecticut.....	1907	781.18	9	781.15	9	781.15	.....	.....	.....	.....	.....	.....
	1902	578.49	23	578.49	23	578.49	.....	.....	.....	.....	.....	.....
New York.....	1907	3,800.19	101	3,884.74	97	3,788.24	7	4	1	.....	1	.....
	1902	2,797.90	96	2,809.91	87	2,596.22	12	8	2	1	2	.....
New Jersey.....	1907	1,319.80	26	1,324.12	26	1,324.12	.....	.....	.....	.....	.....	.....
	1902	865.65	26	861.28	24	858.68	1	1	1	1	.....	.....
Pennsylvania.....	1907	3,702.07	122	3,621.12	119	3,602.44	.....	.....	5	4	3	.....
	1902	2,504.58	98	2,480.91	92	2,468.70	1	.....	8	6	1	.....

¹ Exclusive of 27.52 miles lying outside of the United States.

² Includes 5 companies operating 40.99 miles by gasoline motors.

³ Exclusive of 4.20 miles lying outside of the United States.

⁴ Includes 1 company operating 6.06 miles by compressed air.

⁵ Exclusive of 26.28 miles lying outside of the United States.

⁶ Exclusive of 3.05 miles lying outside of the United States.

⁷ Exclusive of 3.05 miles in Canada.

⁸ Exclusive of 23.23 miles in Canada.

STREET AND ELECTRIC RAILWAYS.

TABLE 7.—MILES OF TRACK, BY CHARACTER OF POWER, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—
Continued.

STATE OR TERRITORY.	Census.	TOTAL.			ELECTRIC.			ANIMAL.			CABLE.			STEAM.		
		Net trackage in state (miles).	Trackage of com- panies in state.		Number of operating companies reporting		Miles of track.	Number of operating companies reporting		Miles of track.	Number of operating companies reporting		Miles of track.	Number of operating companies reporting		Miles of track.
			Number of operating com- panies.	Miles.	Electric track- age.	Electric track- age exclu- sively.		Animal track- age.	Animal track- age exclu- sively.		Cable track- age.	Cable track- age exclu- sively.		Steam track- age.	Steam track- age exclu- sively.	
South Atlantic division...	1907	2,250.96	101	2,300.73	95	95	2,292.45	4	4	5.53				12	12	12.75
	1902	1,628.90	80	1,670.15	73	73	1,656.47	7	7	13.68						
Delaware.....	1907	104.93	4	95.93	4	4	95.93									
	1902	85.61	3	85.61	3	3	85.61									
Maryland.....	1907	551.51	13	536.18	13	13	536.18									
	1902	456.44	10	437.84	10	10	437.84									
District of Columbia.....	1907	160.02	6	176.03	6	6	176.03									
	1902	146.17	8	161.97	8	8	161.97									
Virginia.....	1907	512.99	23	515.54	23	23	515.54									
	1902	358.17	21	359.30	20	20	357.30	1	1	2.00						
West Virginia.....	1907	208.72	15	206.41	15	15	206.41									
	1902	93.08	8	140.00	8	8	140.00									
North Carolina.....	1907	106.94	11	106.94	9	9	104.19							12	12	12.75
	1902	46.32	7	46.32	7	7	46.32									
South Carolina.....	1907	131.18	7	131.26	6	6	129.76	1	1	1.50						
	1902	76.98	7	76.98	5	5	73.80	2	2	3.18						
Georgia.....	1907	356.41	12	354.18	10	10	351.28	2	2	2.90						
	1902	303.34	10	300.38	8	8	296.63	2	2	3.75						
Florida.....	1907	118.26	10	118.26	9	9	117.13	1	1	1.13						
	1902	61.75	6	61.75	4	4	57.00	2	2	4.75						
North Central division....	1907	12,813.99	283	12,850.53	280	274	12,717.07	8	8	21.02	4	1	4.81	17	14	107.63
	1902	7,837.55	241	7,915.32	224	218	7,633.83	21	16	58.18	4	1	125.31			
Ohio.....	1907	3,675.86	73	3,707.10	71	70	3,723.04	1	1	1.45	1	1	.61	1		42.00
	1902	2,338.50	63	2,353.43	62	61	2,351.32	1		1.50	1	1	.61			
Indiana.....	1907	1,928.78	33	1,932.93	32	31	1,928.68	1	1	1.00				1		3.25
	1902	656.63	27	646.66	25	25	643.87	2	2	2.79						
Illinois.....	1907	2,755.50	70	2,776.46	67	66	2,739.92	1	1	1.55	1		.60	12	12	134.49
	1902	1,659.35	50	1,635.20	47	44	1,528.07	6	3	15.43	2		91.70			
Michigan.....	1907	1,323.71	24	1,275.03	24	24	1,275.03									
	1902	1,048.36	24	1,022.81	24	24	1,022.81									
Wisconsin.....	1907	675.53	20	590.65	20	20	590.65									
	1902	498.14	17	416.30	17	17	416.30									
Minnesota.....	1907	437.82	5	457.16	5	4	436.02				1		1.13			
	1902	316.27	5	338.17	5	5	338.17									
Iowa.....	1907	641.39	24	639.84	24	23	619.45							1		30.39
	1902	341.35	22	378.25	20	19	374.43	3	2	3.82						
Missouri.....	1907	866.68	14	921.67	14	12	919.20				1		2.47			
	1902	713.64	16	758.34	13	12	719.48	3	3	5.90	1		33.00			
North Dakota.....	1907	13.66	4	16.09	4	4	16.09									
South Dakota.....	1907	5.00	1	5.00	1	1	5.00									
	1902	2.00	1	2.00				1	1	2.00						
Nebraska.....	1907	184.34	8	218.73	5	5	211.01	2	2	3.22				1	1	4.50
	1902	119.56	4	113.66	3	3	110.55	1	1	3.11						
Kansas.....	1907	305.72	17	249.98	13	13	233.08	3	3	13.80				1	1	13.00
	1902	196.81	12	150.26	8	8	124.63	4	4	21.63						

1 Includes 1 company operating 1.25 miles by gasoline motors.

2 Includes 3 companies operating 37.49 miles by gasoline motors.

3 Operated by gasoline motors.

4 No company reported in 1902.

TABLE 7.—MILES OF TRACK, BY CHARACTER OF POWER, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OR TERRITORY.	Census	TOTAL.		ELECTRIC.			ANIMAL.			CABLE.			STEAM.		
		Net trackage in state (miles).	Trackage of com- panies in state.		Number of operating companies reporting—		Number of operating companies reporting—		Miles of track.	Number of operating companies reporting—		Miles of track.	Number of operating companies reporting—		Miles of track.
			Number of operating com- panies.	Miles.	Electric track- age.	Electric track- age exclu- sively.	Animal track- age.	Animal track- age exclu- sively.		Cable track- age.	Cable track- age exclu- sively.		Steam track- age.	Steam track- age exclu- sively.	
South Central division.....	1907	¹ 1,914.73	90	1,905.91	84	83	1,884.00	4	4	7.78	1	.88	² 2	² 2	³ 13.25
	1902	¹ 1,316.03	86	1,322.45	57	55	1,270.43	8	8	18.22	1	1.80	3	1	32.00
Kentucky.....	1907	402.34	13	399.13	13	12	389.11								
	1902	294.35	12	283.95	12	12	283.95								
Tennessee.....	1907	292.15	9	297.50	9	8	296.62				1	.88	1		4.00
	1902	248.53	8	254.20	8	7	248.40				1	1.80			
Alabama.....	1907	298.86	10	291.66	9	9	290.66						1	1	11.00
	1902	204.72	9	204.72	7	6	173.69	1	1	3.03			2	1	28.00
Mississippi.....	1907	86.40	8	86.40	8	8	86.40								
	1902	25.30	5	25.30	5	5	25.30								
Louisiana.....	1907	238.52	11	238.52	11	11	238.52								
	1902	198.52	8	198.52	6	6	192.86	2	2	5.66					
Arkansas.....	1907	82.22	8	87.39	7	7	86.41	1	1	.98					
	1902	51.33	7	52.49	6	6	49.83	1	1	2.66					
Oklahoma.....	1907	100.44	8	100.44	8	8	100.44								
Texas.....	1907	⁴ 418.80	23	414.87	19	19	405.82	3	3	6.80			⁴ 1	⁴ 1	⁴ 2.25
	1902	⁴ 303.28	17	303.27	13	13	296.40	4	4	6.87					
Western division.....	1907	3,633.02	91	3,633.02	84	78	3,571.41	4	2	5.48	9	5	50.08	1	6.05
	1902	1,604.18	60	1,604.18	51	43	1,413.49	16	12	50.82	10	3	102.32	6	37.35
Montana.....	1907	69.24	5	69.24	5	5	69.24								
	1902	63.21	5	63.21	5	5	63.21								
Idaho.....	1907	73.09	2	44.24	2	2	44.24								
	1902	3.50	1	3.50	1	1	3.50								
Colorado.....	1907	317.37	11	317.37	11	11	317.37								
	1902	234.53	8	234.53	7	7	223.28	1	1	1.25					
New Mexico.....	1907	10.10	2	10.10	2	2	10.10								
	1902	2.10	1	2.10				1	1	2.10					
Arizona.....	1907	30.75	4	30.75	4	4	30.75								
	1902	17.10	2	17.10	1	1	12.00	1	1	5.10					
Utah.....	1907	122.54	3	122.54	3	3	122.54								
	1902	89.04	3	89.04	3	3	89.04								
Nevada.....	1907	7.15	1	7.15	1	1	7.15								
Washington.....	1907	730.27	14	704.73	14	11	743.64				2	15.04	1		6.05
	1902	228.93	8	228.93	8	6	214.33				2	14.60			
Oregon.....	1907	259.02	8	253.41	7	7	252.39	1	1	1.02					
	1902	136.67	6	136.67	5	4	132.17				1	2.00	1	1	2.50
California.....	1907	2,013.49	41	2,013.49	35	32	1,973.99	3	1	4.46	7	35.04			
	1902	829.10	35	829.10	21	16	665.96	13	9	42.37	7	85.72	6	1	33.06

¹ Exclusive of 1.24 miles lying outside of the United States.
² Includes 1 company operating 2.25 miles by gasoline motors.
³ Exclusive of 1.15 miles lying outside of the United States.
⁴ No company reported in 1902.

⁵ Exclusive of 1.24 miles in Mexico.
⁶ Operated by gasoline motors.
⁷ Exclusive of 1.15 miles in Mexico.

The greatest actual increase in the net trackage in any state was reported for Ohio, the increase amounting to 1,337.36 miles. The next largest increases were in Indiana, with 1,272.15 miles; Pennsylvania, with 1,257.49 miles; California, with 1,184.39 miles; Illinois, with 1,096.15 miles; and New York, with 1,011.29 miles. The largest relative gain occurred in Idaho, where the track increased from 3.50 miles in 1902 to 73.09 miles in 1907, or 1,988.3 per cent. The smallest actual increase, 3 miles, was reported by South Dakota, while the lowest rate of increase, 9.5 per cent, is shown for the District of Columbia and

Montana. The large gains in the mileage of track in Ohio, Indiana, California, and Illinois can be accredited mainly to development of interurban lines, while the increases in Pennsylvania and New York are due to the growth of both urban and interurban lines.

The only increases in trackage operated by animal power were reported by one company in Nebraska and one company in Oregon. The 61.71 miles of cable tracks reported for 1907 included 8.96 miles of inclined plane operated by 12 companies and 52.75 miles of street cable track operated by 8 companies. Although the amount of track operated by steam

shows a decrease, this decrease is the result of decreases reported in the case of 10 companies, amounting to 157.11 miles, or about nine-tenths of the steam trackage operated in 1902, and additions reported by 11 companies, amounting to 92.56 miles.

One of the processes in the evolution of electric-railway systems consists in the operation of a steam line as an adjunct or part of an electric system, and then in the electrification of the steam trackage. Thus in Ohio the 42 miles of steam tracks reported in 1907 for the first time were operated by a company which also operated 451 miles of track with electric power. The 20.39 miles of new steam trackage in Iowa was operated by one company in conjunction with 39.66 miles of electric trackage. In 1902 this same company operated 22 miles of trackage by both electric and steam power, while in 1907 electric power was used exclusively on this mileage. The 1 company in Washington reporting 6.05 miles of new steam tracks had 55.52 miles of electric track; the 1 company in Indiana reporting 3.25 miles of new steam tracks had 24.55 miles of electrically operated tracks. Of the 2 companies in Pennsylvania reporting new steam tracks, one had 0.33 mile of track operated by steam and 24.68 miles of track operated by electric power, and the other had 8.06 miles operated by steam and 523.50 miles operated by electricity. The 0.43 mile of new steam track in Massachusetts was operated in conjunction with a large electric-track system. The balance of the new steam trackage was in New York, Alabama, Nebraska, and North Carolina, the last named being used for summer or pleasure-resort traffic.

Number of cars.—The number of passenger cars was 85.5 per cent greater in 1902 than in 1890 and but 16.1 per cent greater in 1907 than in 1902. The use of electricity has made it possible to increase the size of the cars, and it follows that the increases in the number of fare passengers, 136 per cent from 1890 to 1902 and 55.9 per cent from 1902 to 1907, are much greater than the corresponding increases in the number of cars.¹

Traffic.—Fare and transfer passengers were reported separately at the last two censuses, and for 1907 the number of free passengers also was given as a separate total. The number of employees, police, city officials, and others carried free as "badge" passengers have probably not been reported at any census. No distinction as to the classes of passengers was made at the census of 1890,² but it is probable that there were comparatively few transfer passengers, and therefore the total number for that year is compared with the numbers of fare passengers for 1902 and 1907, the increase being from 2,023,010,202 in

1890 to 4,774,211,904 in 1902 and to 7,441,114,508 in 1907; consequently the number for 1907 was more than three and one-half times as great as the total in 1890.

The actual increase over 1890 was slightly greater than the figures indicate, because in some instances the totals for that census were based on twelve months of operation for those roads operating less than the entire year, while only the numbers actually carried during the periods of actual operation were reported for 1902 and 1907. In accepting the figures of passengers carried it should also be remembered that 5.13 per cent of the number shown for 1890 was the result of estimates based on unofficial sources, while the figures for 1902 cover 811 out of 817 operating companies, and those for 1907, 944 out of 945 such companies. Of the 6 companies not reporting passengers in 1902, 2 were exclusively freight roads and 4 were passenger roads which failed to report; the 1 company not reporting passengers in 1907 was an exclusively freight road.

Table 2 shows that the greatest absolute increase in the number of passengers carried was reported for the roads operating in the North Atlantic division, while the largest percentage of increase for the period 1890 to 1902 was for the South Atlantic division, and for the period 1902 to 1907 for the South Central division.

The uncertainty in regard to the inclusion of transfer passengers at the census of 1890 and changes in census methods detract from the value of a comparison of the figures for that census with those for 1902 and 1907. This is especially true in regard to such computations as those to determine the average number of fare passengers carried per mile of track operated. The totals indicate that this average decreased from 249,047 in 1890 to 212,217 in 1902 and increased to 216,522 in 1907. It is probable that the proportion of "saturated" trackage in 1890 was greater than in 1902 and 1907, when every small community had come to feel that it must have a car line whether it could furnish passengers or not. And yet it is quite possible that the 1890 average was somewhat too high.

It is now almost impossible to compile accurate statistics of the territory from which the electric railways of the country draw their traffic. A zone established by an arbitrary radius would be unsatisfactory, and it is impracticable to estimate the population by a personal inspection of the territory traversed by every road or to make a special enumeration for this purpose. Therefore the importance of the electric railways, as indicated by their traffic, can be established in a general way only by comparing the number of passengers carried with the total population. Statistics of this character are given in Table 8.

¹ See p. 240 for information concerning size and style of cars.

² Generally the number reported for 1890 represented fare passengers only, although in some instances, apparently, the total of fare and transfer passengers was reported.—*Report on Street and Electric Railways, 1902*, p. 9.

TABLE 8.—RELATION OF TRAFFIC TO POPULATION, BY GEOGRAPHIC DIVISIONS: 1890 TO 1907.

DIVISION.	Census.	POPULATION. ¹		Number of fare passengers.	AVERAGE NUMBER OF RIDES PER INHABITANT IN—	
		Total.	Urban (places of 8,000 and over).		Total population.	Urban population.
United States.....	1907	85,532,761	29,751,774	7,441,114,508	87	250
	1902	78,576,436	26,317,705	4,774,211,904	61	191
	1890	62,247,714	18,284,385	2,021,010,202	32	111
Increase.....	1902 to 1907	6,956,325	3,434,069	2,666,902,604	26	69
	1890 to 1902	15,028,722	8,033,320	2,751,201,702	29	70
North Atlantic.....	1907	23,779,013	14,510,828	3,714,134,088	156	236
	1902	21,778,196	12,968,949	2,618,528,979	120	202
	1890	17,406,989	9,016,383	1,141,187,400	66	127
Increase.....	1902 to 1907	2,000,817	1,541,879	1,095,605,109	36	34
	1890 to 1902	4,371,227	3,953,566	1,477,341,519	54	73
South Atlantic.....	1907	11,574,088	2,078,048	687,991,328	42	215
	1902	10,770,414	1,855,478	297,109,541	28	110
	1890	8,857,922	1,419,964	101,647,174	11	72
Increase.....	1902 to 1907	804,574	222,570	190,782,087	14	75
	1890 to 1902	1,912,492	416,514	195,551,367	17	88
North Central.....	1907	29,026,545	9,737,433	2,223,625,340	77	228
	1902	27,087,206	8,519,447	1,344,000,961	50	158
	1890	22,410,417	5,793,906	538,309,887	24	93
Increase.....	1902 to 1907	1,939,339	1,217,986	879,624,379	27	70
	1890 to 1902	4,616,789	2,725,531	805,691,064	28	65
South Central.....	1907	16,308,558	1,850,984	414,225,626	25	224
	1902	14,651,535	1,622,545	210,103,861	14	129
	1890	11,170,137	1,147,089	98,006,026	9	86
Increase.....	1902 to 1907	1,717,023	228,439	204,121,765	11	95
	1890 to 1902	3,481,398	475,466	112,008,835	5	44
Western.....	1907	4,783,567	1,574,481	601,247,317	126	382
	1902	4,280,083	1,351,286	304,379,572	71	225
	1890	3,102,269	908,053	145,800,655	46	158
Increase.....	1902 to 1907	494,472	223,195	296,867,745	55	157
	1890 to 1902	1,186,816	463,233	180,518,917	25	67

¹ Population for 1907 and 1902 is the official estimate for those years; for 1890 it is as reported at that census.

The largest increase in number of rides per inhabitant for the last census period was shown for the Western division, while in this respect the other divisions ranked as follows: North Atlantic, North Central, South Atlantic, and South Central. For the census interval 1890 to 1902 the North Atlantic division was first in rank in the increase in number of rides per inhabitant, and was followed by the North Central, Western, South Atlantic, and South Central divisions in the order named.

Car mileage.—The number of miles the cars run during the year is one of the most important facts to be considered in determining the activity of the railways. The passenger-car mileage, 383,178,085,¹ reported for 1890 did not cover the entire number of railways in operation, and therefore should not be used in a comparison of totals for the subsequent censuses. The passenger-car mileage amounted to 1,120,101,944 in 1902 and 1,583,831,199 in 1907, the increase being 463,729,255 miles, or 41.4 per cent. The car mileage for express, freight, mail, and work cars and locomotives, reported separately at the last two censuses, amounted to 24,328,522 in 1902 and 33,900,101 in 1907, the increase being 9,571,579 miles, or 39.3 per cent.

¹ In 1890 car mileage was reported for companies with 4,375.81 miles of line out of a total of 5,783.47 miles.

The average number of fare passengers per car mile as computed from the defective data for 1890 was 4.63; in 1902 it had decreased to 4.26, but for 1907 it shows an increase to 4.70. The variation in the number of fare passengers per car mile results from a number of causes. The traffic per mile is as a rule much lighter over interurban roads than over urban roads, and an increase in interurban trackage tends to decrease the number of fare passengers per passenger-car mile. On the other hand, on established interurban as well as urban roads, the increases in traffic, unless met by proportionate increases in car service, cause an increase in the number of fare passengers per passenger-car mile, and additions to car service are not made, as a rule, until the volume of traffic requires it. Other factors are the change in the average size of cars and the difference in the methods of reporting the number of passengers carried, i. e., zone as against trip passengers. During the last census period there has been a marked increase in the size of passenger cars used, which has caused an increase in the average number of passengers per car mile. Thus the number of passenger cars increased but 16.1 per cent, while the number of fare passengers increased 55.9 per cent and the passenger-car mileage, 41.4 per cent.

Cost of construction and equipment.—Inquiries on this subject have been included in the census sched-

ules, but it is admittedly impossible to obtain accurate statistics concerning the cost of construction.¹ In preparing the balance sheet the majority of the companies treated the cost of construction item as an asset to offset the liability represented by the par value of the stock and bonds, both items being book values. A few companies reported a cost of construction less than the amount of capitalization and gave the value of the franchise as an asset sufficient to counterbalance the capitalization. In most instances it was contended that the actual cost of original construction plus additions, improvements, and repairs could not be ascertained. The cost reported at each census is therefore mainly an estimate, largely controlled by the par value of the capitalization, and the results of comparisons should be considered as general indications only. The amount reported as cost of construction and equipment for 1907 is more than nine times as great as the amount reported for 1890 and over one and two-thirds times as great as the total for 1902. The totals for 1902 and 1907 are more nearly comparable with each other than either is with the total for 1890, because the same form of inquiry was used at the two later censuses, and also because during these periods there was greater uniformity among railway accountants in regard to the items that should be considered in determining the cost of construction. From 1902 to 1907 the total cost of construction and equipment increased by \$1,470,034,631, or 67.8 per cent.

The reports for the last two censuses show also the cost of new construction and equipment work charged to the plant account during the respective census years. During the census year 1902 the cost of new construction amounted to \$126,682,473 as compared with \$184,918,453 for 1907, the latter being an increase of 46 per cent over the former in the cost of the annual additions. The new construction for 1902 formed 5.8 per cent and that for 1907, 5.1 per cent of the total cost of construction and equipment. Unfavorable financial conditions in 1907 doubtless retarded new construction work during that year. These amounts do not include the cost of railway properties under construction but not in operation, but do include in many instances the cost of new work in progress by operating companies.

Capitalization.—The statistics of capital stock and funded debt were not fully reported at the census of 1890, as the capitalization and trackage were given for roads controlling only 4,542.88 line miles, or 78.5 per cent of the total mileage. Therefore the totals for that year given in the following table are not strictly comparable with the data for 1902 and 1907:

¹ The figures are no indication of the actual cash invested in plants, track, and equipment. A great many systems have changed hands since they were constructed, and it was impossible to ascertain the original cost.

TABLE 9.—Capitalization: 1890 to 1907.

	CENSUS.			PER CENT OF INCREASE.	
	1907	1902	1890 ¹	1902 to 1907	1890 to 1902
Total capitalization outstanding.....	\$3,774,772,096	\$2,308,282,099	\$440,053,649	63.5	414.0
Average per mile of line.....	\$134,960	\$130,560	98,848	3.4	32.1
Average per mile of track.....	\$100,495	\$98,287	.....	4.4	.....
Capital stock outstanding.....	2,097,708,856	1,315,572,080	272,441,843	50.5	382.9
Funded debt outstanding.....	1,677,063,240	992,709,139	176,611,826	68.9	402.1

¹ The statistics are for roads with 4,542.88 miles of line, or 78.5 per cent of the total.

² Exclusive of track for which no capitalization was reported and permanent or other investments.

The capitalization of railways necessarily includes some investments in nonrailway property. This is especially true of the totals for 1902 and 1907, which include capital invested in electric light and power plants and other interests, some of which are not allied to the operation of the roads. In the computation of the average per mile of track these investments have been deducted for 1907 and 1902, but it is impossible to determine the amount that should be deducted, if any, for 1890.

The use of electricity has made such a complete change in the equipment of railways that a comparison of the capitalization per mile of line or track, as reported for 1902 or 1907, with the average for 1890, when the majority of the roads were horse railways, necessarily shows a great increase. The period between 1902 and 1907 represents a more comparable condition, though the reorganization, concentration, and recapitalization, as well as the investments in nonrailway property, that occurred during the five-year period, should be considered in accepting the figures. The totals for both years include the capitalization of lessor as well as that of operating companies.

In 1890 the capital stock formed 60.7 per cent of the total capitalization; in 1902 the proportion had decreased to 57 per cent and by 1907 to 55.6 per cent.

The increase in the funded debt is proportionately greater than the increase in share capital. The funded debt, which in 1890 formed 39.3 per cent of the total capitalization, increased to 43 per cent in 1902, and to 44.4 per cent in 1907. Moreover, the funded debt does not comprise all of the borrowed capital chargeable to investment account. The practice of borrowing funds on promissory notes to be used for betterments and additions appears to be growing; and such indebtedness is properly a capitalization liability and would be so treated if it were possible to segregate it entirely from other current liabilities. The current liabilities amounted to \$461,248,533 at the census of 1907, \$252,145,435 at the census of 1902, and \$30,368,465 at the census of 1890. Floating debt

(loans and notes) and bills and accounts payable formed the larger part of the amount at each census. In 1907 the current liabilities constituted 12.2 per cent of the aggregate amount of capitalization, compared with 10.9 per cent in 1902 and 6.8 per cent in 1890. Although the returns of assets and liabilities for 1890 did not include all companies, it was estimated that the totals returned by the companies reporting balance sheets formed 81 per cent of the totals of all street railways, and when due allowances are made for the incomplete character of the returns for 1890 and the variations in reporting the different items of liabilities at the different censuses, it is evident that the current liabilities have increased faster than the capitalization.

Under normal conditions it would be expected that an industry would not show a very wide range in the rate of increase with respect to operating expenses, operating earnings, capitalization, and current liabilities, but in the street-railway industry there is considerable variation, especially between 1890 and 1902. The percentages of increase for the items named are shown in the following tabular statement.

The great difference between the rate of increase for capitalization and the rates for expenses and earnings, from 1890 to 1902, was evidently caused by the heavy capitalization that attended the rapid development of that period.

	PER CENT OF INCREASE.	
	1902 to 1907	1890 to 1902
Operating expenses.....	76.6	120.5
Operating earnings.....	68.9	173.2
Capitalization.....	63.5	414.0
Current liabilities.....	82.9	730.3

Investments in other than railroad property form another disturbing factor, when a comparison of the items is attempted for different years. A number of companies reported large amounts invested in the stocks and bonds of other electric-railway companies, and in electric light and power, gas, and other enterprises,¹ and in some cases the funds for such investments came from capitalization, while in others it is represented by floating indebtedness or current liabilities. These varied conditions tend to destroy the value of the comparisons between capitalization and current liabilities, and expenses and earnings.

Income and expenses.—As previously stated, the statistics of income and expenses were not reported for all companies at the census of 1890. In 1902 they were reported for 799 out of 817 operating companies, and in 1907 for 939 out of 945 operating companies.

¹ See "Net capitalization," p. 103.

TABLE 10.—DISTRIBUTION OF THE GROSS INCOME OF OPERATING COMPANIES, BY LEADING ITEMS OF EXPENDITURE: 1890 TO 1907.

ITEM.	AMOUNT.			PER CENT OF GROSS INCOME.		
	1907. ¹	1902. ²	1890	1907	1902	1890
Gross income from all sources.....	\$429,744,254	\$250,504,027	\$91,721,945	100.0	100.0	100.0
From passengers.....	382,132,424	233,821,548	80,711,830	88.9	93.3	97.8
Other operating income.....	39,053,361	13,732,431	805,381	8.4	5.5	1.0
From all other sources.....	11,558,386	2,950,038	1,104,634	2.7	1.2	1.2
Operating expenses.....	251,300,252	142,312,207	62,011,185	58.5	56.8	67.6
Deductions from income (taxes and fixed charges), total.....	138,094,716	77,595,053	13,978,903	32.1	31.0	15.2
Taxes and licenses.....	19,753,602	13,078,899	3,308,190	4.6	5.2	3.6
Interest.....	63,740,744	38,085,911	8,086,216	14.8	15.2	8.8
Rentals.....	48,022,696	25,518,225	2,561,343	11.2	10.2	2.8
Miscellaneous.....	6,575,774	912,018	23,154	1.5	0.4	0.0
Dividends.....	26,434,732	15,882,110	10,180,726	6.2	6.3	11.1
Miscellaneous payments.....	13,865,554	14,714,867	4,333,838	3.2	5.9	4.8
Surplus.....						

¹ Exclusive of reports for 6 companies with a trackage of 202.95 miles.

² Exclusive of reports for 18 companies with a trackage of 379.90 miles.

³ Less than one-tenth of 1 per cent.

An estimate based on a 5-cent fare for each passenger carried in 1890 would increase the operating earnings for that year to the neighborhood of \$100,000,000 as compared with \$247,553,999 for 1902 and \$418,187,858 for 1907.

This comparison, as well as the comparisons of practically all of the items shown in Table 10, for the census of 1890 and the later censuses, are indicative rather than real, because it was apparently impossible to obtain complete reports at the earliest census.

During recent years railway companies have engaged more extensively in the carriage of freight, mail, and express matter, and also in the sale of electricity. It follows that the receipts from these miscellaneous sources

of operating income have increased greatly since 1890. The income from passenger service formed 99 per cent of the total income from operation in 1890, but this proportion decreased to 94.5 per cent in 1902 and to 91.4 per cent in 1907. The percentage that the income from sources other than operation formed of the gross income was 1.2 per cent for both 1902 and 1890, and by 1907 it had increased to 2.7 per cent.

The introduction of electric traction has been an important factor in revolutionizing the relationship of operating expenses to operating earnings.³ In 1890 the per cent ratio of operating expenses to operating

³ See also p. 175.

earnings (operating ratio) was 73.7 for the roads operated by horse cars. For all classes of roads the per cent ratios of operating expenses to operating earnings were 68.4 for 1890, 57.5 for 1902, and 60.1 for 1907. While it is probable that the ratio of expenses to earnings in the case of a horse railway operated under the business methods now in vogue would be considerably less than the ratio for the same road operated under the methods of 1890, still the broader field of operation developed by electricity, the resulting larger investment, and the entire change in the physical equipment are important factors that should be considered in connection with the economies incident to modern business methods.

In 1907 some of the 23 railways operated exclusively by animal power were operated only for the purpose of holding franchise rights. All of these roads were small, and in the case of 7 of them operating expenses exceeded income. The miles of track of these 23 roads was but 46.98; the income from operation, \$71,205; operating expenses, \$58,702; and ratio of operating expenses to operating earnings, 82.4 per cent.

The general relative decrease in operating expenses (operating ratio) between 1890 and 1907 was accompanied by an increase in the fixed charges. The fixed charges formed only 15.2 per cent of the gross income in 1890, but by 1902 the ratio had more than doubled, forming 31 per cent in that year, and by 1907 it had increased to 32.1 per cent. Interest and rentals are the fixed charges that show the heaviest increase since 1890. The amount paid as interest on funded debt, mortgages, and floating debt in 1907 formed 14.8 per cent of the gross income, as compared with 8.8 per cent in 1890. While the total interest expense was \$8,086,216 in 1890, the interest on funded debt alone amounted to \$53,766,525, or 12.5 per cent of the gross income in 1907, and \$35,223,284, or 14.1 per cent of the gross income in 1902. It is probable that the interest on mortgages and floating debt was not an important item of expense in 1890.

The per cent distribution of the several items constituting the fixed charges of the operating companies for the three census years is given in the following statement:

Per cent distribution of fixed charges of operating companies: 1890 to 1907.

ACCOUNT.	PER CENT DISTRIBUTION.		
	1907	1902	1890
Total.....	100.0	100.0	100.0
Taxes and licenses.....	14.3	16.9	23.7
Interest.....	48.1	49.1	57.8
Rentals.....	34.8	32.9	18.3
Miscellaneous.....	4.8	1.2	0.2

The large gain shown for rentals is due to the increase in the number of leased roads. The bulk of the rentals eventually appears as interest on the bonds and dividends on the stock of the lessor companies.

Rentals and interest combined formed 80.9 per cent of the fixed charges of the operating roads in 1907, compared with 82 per cent in 1902 and 76.1 per cent in 1890. The increase in the miscellaneous item from 1902 to 1907 was due almost entirely to the greater charge to depreciation and reserve accounts in the latter year.

Number of employees.—The average number of salaried people and of wage-earners employed during the year was reported at the last two censuses. This average number corresponds, in most cases, with the number required to operate the railway systems under normal conditions. The number of laborers required for repairs and miscellaneous work may vary greatly at different seasons and the average for the entire period of twelve months would be considerably less than the greatest number employed at any one time during the year. It appears that the number reported for 1890 was the average number for the time during which each railway was in operation, and this probably resulted in obtaining a larger number than would have been reported if the same method employed in 1902 and 1907 had been followed. At the census of 1902, 20 companies, with a trackage of 417.03 miles, and at the census of 1907, 6 companies, with a trackage of 292.95 miles, failed to report the number of employees. Therefore the actual increase in the number of salaried employees and wage-earners during the period from 1890 to 1902 was somewhat greater than the 98.9 per cent shown in Tables 1 and 2. As the same form of inquiry was used and the same methods followed at the last two censuses, the 57.3 per cent of increase from 1902 to 1907 may be accepted as representing actual conditions, if allowance is made for the disproportion in the number of companies reporting the inquiry.

The number of salaried employees was not fully reported in 1890; in 1902, 7,128 such employees were returned, and in 1907, 11,700, the increase being 64.1 per cent. The ratio of salaried employees (office force) to wage-earners (conductors, motormen, laborers, etc.) varies considerably with the different companies, being dependent to a great extent upon the character of the organization and the extent of the allied interests. Therefore the average number of wage-earners to each salaried employee, as obtained from the total for all companies reporting, has but slight significance; there were, however, 18.7 wage-earners to each salaried employee in 1902 and 17.9 in 1907.

Varying conditions also control the number of passengers that can be carried to each wage-earner, but the average for all passengers for all operating companies reporting was 43,674 in 1902 and 45,454 in 1907. The returns indicate that the average was considerably less in 1890.

The inclusion of all wage-earners as a basis for passenger comparisons involves many employees in no way related to passenger traffic, noticeably employees chargeable to express and freight business, which has

developed at a higher rate than passenger traffic. The growth of interurban traffic is also a modifying factor, as the average number of passengers per wage-earner carried in long-haul interurban traffic is much below that for urban traffic.

On a basis of number of conductors and motormen employed, the average number of fare passengers was 64,415 in 1907 and 59,570 in 1902.

*Railways in Hawaii and Porto Rico.*¹—Table 11 presents the main statistics for the railways in Hawaii and Porto Rico at the censuses of 1907 and 1902.

Of the 3 companies reporting from Hawaii in 1902, only 1 was in existence in 1907. During the intervening years 1 of the other companies had gone out of business and the other had been absorbed by the company reporting at both censuses. The 2 companies in operation in Porto Rico in 1902 were reported for 1907, and in addition a third company was shown for the first time in 1907. The statistics of the companies in these outlying districts are not included in the total for the United States in any of the text or general tables.

¹ For statistics and history of electrical industries of Porto Rico, see Special Census Report, Electrical Industries of Porto Rico, 1907.

TABLE 11.—*Railways in Hawaii and Porto Rico: 1907 and 1902.*

	1907	1902	Per cent of increase.
Number of operating companies.....	14	15	130.0
Miles of track.....	43.43	41.26	6.2
Number of cars.....	108	115	16.1
Steam engines and turbines:			
Number.....	11	8	37.5
Horsepower.....	3,795	1,820	108.5
Dynamos:			
Number.....	14	9	55.6
Kilowatt capacity.....	2,906	1,324	119.6
Output of stations, kilowatt hours, total for year.....	5,473,303	1,044,965	423.8
Number of passengers, total.....	15,258,303	10,362,035	47.3
Fare.....	12,614,076	9,636,305	30.9
Transfer.....	2,400,537	725,170	240.1
Free.....	177,780	(⁴)	
Car mileage (passenger, express, freight, mail, etc.).....	2,309,516	1,013,400	25.4
Gross income.....	\$753,750	\$515,913	46.1
Operating expenses.....	\$418,432	\$330,350	26.7
Deductions from income (taxes and fixed charges).....	\$184,302	\$106,015	73.9
Capitalization:			
Capital stock authorized, par value.....	\$1,946,400	\$2,423,000	119.7
Capital stock outstanding, par value.....	\$1,846,400	\$2,021,340	109.7
Dividends on stock, amount.....	\$45,000	\$19,500	130.0
Funded debt authorized, amount.....	\$2,448,786	\$1,986,800	29.8
Funded debt outstanding, amount.....	\$1,004,796	\$1,163,800	37.9
Interest on funded debt.....	\$63,159	\$66,305	40.5
Salaried employees:			
Number.....	22	22	45.5
Salaries.....	\$45,789	\$25,179	81.9
Wage-earners:			
Average number.....	365	381	14.2
Wages.....	\$198,142	\$177,020	11.6

¹ Includes 1 company in Hawaii and 3 in Porto Rico.

² Includes 3 companies in Hawaii and 2 in Porto Rico.

³ Increase.

⁴ Not reported separately.

CHAPTER III.

POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS.

Traffic and financial operations are probably the most important features of the railway industry, but logically the physical equipment of the roads should be considered first. Of the equipment, the power plant is the primary unit, and statistics concerning it will be presented in advance of those for the roadbed and track. Detailed statistics for the power plants and other equipment of each railway company included in the census of 1907 are given in Tables 183 to 187. The following discussion considers the totals for all companies and for various groups of companies, the comparison of statistics being limited almost entirely to the years 1907 and 1902, because in 1890 there were comparatively few electric roads in operation and the information concerning them was not complete.

Electricity was used, wholly or in part, as the motive power in the case of 904 of the 945 companies reported as in operation during 1907 and 747 of the 817 reported for 1902, and the electric-traction companies were credited with all but a small portion of the trackage in operation at both censuses. Table 12 shows the character of the motive power used by companies with power plants and by those without power-plant equipment.

TABLE 12.—Companies with and without power-plant equipment, classified according to character of power: 1907 and 1902.

CHARACTER OF POWER.	NUMBER OF OPERATING COMPANIES.	
	1907	1902
Total.....	945	817
With power plants, total.....	570	577
Electric exclusively, total.....	554	541
Current generated.....	515	498
Steam power rented, current generated.....	3	13
Primary and electrical generators idle, current purchased.....	19	7
Primary generators idle, current purchased.....	1	.....
Electrical generators idle, current purchased.....	16	23
Electric and other kinds, total.....	15	23
Current generated.....	14	20
Primary and electrical generators idle, current purchased.....	1	.....
Primary generators idle, current purchased.....	.....	3
Cable exclusively.....	7	112
Compressed air exclusively.....	.....	1
Without power plants, total.....	369	240
Electric exclusively, current purchased.....	1327	1190
Electric and other kinds, current purchased.....	7	3
Gas-electric motor exclusively.....	1	.....
Gasoline motor exclusively.....	5	.....
Cable exclusively, power rented.....	3	1
Animal exclusively.....	23	53
Steam exclusively.....	3	3

¹ Includes 1 company using cable and other than electric power.

² Includes 1 company operated by storage batteries.

Of the 904 companies operated wholly or in part with electric power in 1907, 569 had power-plant equipment, but of these, 37 reported the equipment as idle and the current as purchased. There were 335 electric-power companies that had no power plants; these purchased their power, with the exception of 1 company which employed gas-electric motors. Of the companies operating electric trackage in 1902, 564 reported power-plant equipment, although 33 of these reported the equipment as idle during the census year and the current as purchased, and 183 companies were without power plants and purchased power. The number of companies operated wholly or in part by power other than electric decreased from 96 in 1902 to 63 in 1907. In 1907 the whole or a part of the power used by 912, or 96.5 per cent, of the operating companies was supplied from central power stations in the form of electric-current and cable power; in 1902 such power was used by 759 companies, or 92.9 per cent, of the companies in operation in that year. The number of operating companies employing motive power that was not transmitted from a central generating station was 33 in 1907 and 58 in 1902.

Number and equipment of power houses.—For census purposes, a "power house" or station is understood to represent all of the equipment included under one roof. As electric power supplied from generating stations operated all but 1.1 per cent of the street and electric railway trackage in 1907, practically all of the power-house equipment was for the generation of electric current. Power generated in a central station but used for other than electric traction was reported by 10 companies operating 20.70 miles of exclusively cable trackage (including inclined planes) and 10 companies operating 41.01 miles of cable trackage in conjunction with electric trackage. The use of power not supplied from central power houses in 1907 is represented by 23 companies operating 46.98 miles of track with animal power exclusively, 3 companies operating 17 miles of track with steam locomotives exclusively, 1 company operating 22.50 miles of track with gas-electric motor cars, 5 companies operating 40.99 miles of track with gasoline-motor cars, and 1 company operating 3 miles of track with storage batteries.

The 576 operating companies that reported power plants at the census of 1907 reported 829 power houses; in 1902 there were 805 power houses, including 14 idle

stations; and in 1890 there were 182 power houses. In 1907, 110 companies had 2 or more power houses as compared with 113 such companies in 1902; the decrease is due largely to the consolidation of 2 or more separate stations.

TABLE 13.—Power-plant equipment and output of stations of operating companies: 1907 and 1902.

	1907	1902 ¹	Per cent of increase.
Main power-plant equipment:			
Power houses, number.....	829	805	3.0
Steam engines and turbines			
Number.....	2,511	2,336	7.5
Horsepower.....	2,368,183	1,286,123	82.4
Gas engines.....			
Number.....	41	15	173.3
Horsepower.....	16,335	1,925	748.6
Water wheels.....			
Number.....	228	159	43.4
Horsepower.....	91,961	40,153	87.1
Auxiliary engines.....			
Number.....	857	301	184.7
Horsepower.....	43,344	10,074	330.3
Dynamos, direct-current.....			
Number.....	2,192	2,861	23.4
Kilowatt capacity.....	941,502	725,346	29.8
Dynamos, alternating-current.....			
Number.....	932	441	111.3
Kilowatt capacity.....	781,914	173,016	351.9
Transformers.....			
Number.....	1,603	731	119.3
Kilowatt capacity.....	243,457	47,361	414.0
Storage batteries, number of cells.....	18,489	18,437	10.6
Boosters for outside feeders.....			
Number.....	134	104	28.8
Kilowatt capacity.....	17,046	13,666	24.7
Auxiliary generators for use within plant.....			
Number.....	311	71	338.0
Kilowatt capacity.....	19,152	3,763	409.0
Rotaries and motor-generator sets.....			
Number.....	243	83	192.8
Kilowatt capacity.....	96,346	20,784	363.1
Electric motors used in plant or substation for miscellaneous work:			
Number.....	2,168	518	318.5
Horsepower.....	50,777	15,154	235.1
Direct-current.....			
Number.....	1,462	432	238.4
Horsepower.....	29,872	10,033	197.1
Alternating-current.....			
Number.....	706	86	720.0
Horsepower.....	20,905	5,101	309.8
Output of stations, kilowatt hours, total for year.....	4,750,130,100	2,261,484,397	110.4
Substation equipment:			
Rotary converters, motor-generator sets, etc.....			
Number.....	1,618	358	352.2
Kilowatt capacity.....	846,968	130,360	507.4
Transformers.....			
Number.....	3,671	926	296.4
Kilowatt capacity.....	889,704	165,306	438.5
Storage batteries, number of cells.....	47,305	22,040	114.2
Miscellaneous machines.....			
Number.....	81	40	102.5
Kilowatt capacity.....	9,297	4,651	99.0

¹ Totals do not include 1 electric motor of 150 horsepower reported as primary power.

² Includes 252 steam turbines of 535,404 horsepower.

³ Decrease.

⁴ Exclusive of 9 transformers for which capacity was not reported.

⁵ Exclusive of 3 boosters for which capacity was not reported.

⁶ Exclusive of 1 auxiliary generator for which capacity was not reported.

⁷ Exclusive of current purchased from stations not operated by electric railways.

⁸ Exclusive of 8 rotary converters for which capacity was not reported.

⁹ Exclusive of 14 transformers for which capacity was not reported.

¹⁰ Exclusive of 3 miscellaneous machines for which capacity was not reported.

The statistics for the equipment of roads operated by power supplied from central power plants in 1890 were not complete, although 358 steam engines with 79,387 horsepower were reported as power-plant equipment. The number and power shown for that year are almost insignificant as compared with the 2,511 steam engines and turbines with 2,368,183 horsepower reported for 1907. Only 375 dynamos were reported in 1890 as compared with 3,124 for 1907.

The aggregate capacity of all apparatus furnishing primary power was 2,476,479 horsepower in 1907 and 1,349,211 horsepower in 1902; the increase was therefore 1,127,268 horsepower, or 83.6 per cent. The capacity of all dynamos was 1,723,416 kilowatts in 1907 and 898,362 kilowatts in 1902, the increase amounting to 825,054 kilowatts, or 91.8 per cent. The capacity of all dynamos, reduced to horsepower, equals 93.3 per cent of the capacity of the primary-power equipment in 1907 as compared with a ratio of dynamo capacity to primary-power capacity of 89.3 per cent in 1902.

The increase in the average capacity of all power units is a marked feature. The average horsepower per steam engine without turbines increased from 556 in 1902 to 811 in 1907; in the latter year the average for steam turbines was 2,125 horsepower, and that for steam engines and turbines, 943 horsepower. Gas engines, although the number is not large, had a large percentage of increase in horsepower and an increase of over threefold in the average capacity per engine. There was an increase of almost seven-eighths in the water power used in the industry, and the average size of water wheels was almost one-third larger in 1907 than in 1902.

While there was a large increase in dynamo capacity, the increase was chiefly in the alternating-current dynamos, the total capacity of alternating-current machines increasing 351.9 per cent and that of direct-current machines, 29.8 per cent. The size of dynamos in use shows a large increase between 1902 and 1907, the increase in direct-current machines being from an average of 254 to 430 kilowatts and that in alternating-current machines from 392 to 839 kilowatts. The average size of the transformers and rotaries also increased very considerably.

There were 251 companies in 1902 and 330 in 1907 that reported the sale of electricity to other railway companies or for general commercial use. Of the companies thus reporting the sale of current, 118 in 1902 and 177 in 1907 had regular electric-light departments. Therefore the total indicated power of the primary and electrical generators should not be considered as used in the operation of cars. It is impossible to ascertain the quantity of current sold during the year, but the importance of this branch of the service is indicated by the amount of the income received from the sale of current for light and power, which was \$20,093,302 in 1907 and \$7,703,574 in 1902. Thus the increase in income from sale of current was \$12,389,728, or 160.8 per cent, as compared with an increase in the total income from operations of 68.9 per cent, and an increase in income from railway traffic—passengers, chartered cars, freight, mail, and express—of 65.4 per cent.

While a study of the equipment and traffic of each railway system for which statistics are given in Tables 183 to 187 is essential to a proper understanding of

the data for the power generators, a grouping of the totals for all companies enables instructive comparisons. The tendency to use larger machines is indicated by the statistics given in Table 14, which shows

the number and horsepower of steam engines, gas engines, and water wheels grouped according to the indicated horsepower of the separate machines.

TABLE 14.—ENGINES AND WATER WHEELS, BY HORSEPOWER: 1907 AND 1902.

KIND AND CAPACITY.	NUMBER.			HORSEPOWER.		
	1907	1902	Per cent of increase.	1907	1902	Per cent of increase.
Steam engines and turbines, total.....	2,511	2,336	7.5	2,368,163	1,296,133	82.4
500 H. P. or under.....	1,285	1,680	119.1	379,675	421,051	19.8
Over 500 and under 1,000 H. P.....	517	430	20.2	365,939	297,257	23.1
1,000 H. P. and over.....	709	317	123.7	1,622,549	579,825	179.8
Gas engines, total.....	41	15	173.3	16,335	1,925	743.6
500 H. P. or under.....	34	15	126.7	8,435	1,925	338.2
Over 500 and under 1,000 H. P.....	5			2,900		
1,000 H. P. and over.....	2			5,000		
Water wheels, total.....	228	159	43.4	91,961	49,183	87.1
500 H. P. or under.....	172	129	33.3	32,763	22,453	45.9
Over 500 and under 1,000 H. P.....	20	12	66.7	13,188	6,850	92.5
1,000 H. P. and over.....	26	18	100.0	46,010	19,880	131.8

† Decrease.

The largest ratios of increase, both in number and in horsepower capacity, are shown for the highest groups, and in every group the ratio of increase in horsepower was greater than the ratio of increase in number, this condition being due to the use of larger power units.

At the census of 1902 the capacity of dynamos was reported in horsepower; in 1907 the rating was stated in kilowatts. It is, therefore, impossible to make a comparison of the number and capacity of the machines grouped according to size, but Table 15 shows the number and kilowatt capacity of alternating and direct current dynamos reported in 1907, classified according to the kilowatt capacity of each machine.

TABLE 15.—DYNAMOS, by kilowatt capacity: 1907.

CAPACITY.	DIRECT-CURRENT DYNAMOS.		ALTERNATING-CURRENT DYNAMOS.	
	Number.	Kilowatt capacity.	Number.	Kilowatt capacity.
Total.....	2,192	941,502	932	781,914
500 K. W. or under.....	1,779	401,242	558	153,294
Over 500 and under 1,000 K. W.....	201	182,210	119	82,796
1,000 and under 2,000 K. W.....	150	207,500	147	190,400
2,000 and under 5,000 K. W.....	28	88,050	28	239,450
5,000 K. W. and over.....	18	90,500	20	116,000

The proportion of dynamos of high capacity was much greater for the alternating-current dynamos than for the direct-current machines. The number of machines with a capacity of 2,000 kilowatts and over constituted only 2.6 per cent of the total number in the case of direct-current dynamos as compared with 11.6 per cent for alternating-current dynamos.

The corresponding percentages for capacity were 19 and 45.5.

Primary power.—Steam is the predominating primary power in practically all branches of industry in the United States as a whole. Water power also has been and is being developed very extensively in sections where it is available and within transmitting distance. But in the street and electric railway industry the importance of water power lies in the large development of hydro-electric power by companies that supply it to the traction companies and other users of electric current. The statistics for street and electric railways do not show the character of the primary power used by the electric-power companies from which power was purchased for electric traction, but from the returns for all commercial electric light and power companies it appears that the water-power equipment of these electric-light companies increased from 427,254 horsepower in 1902 to 1,318,740 horsepower in 1907, an increase of 208.7 per cent, and that water power constituted 35.5 per cent of the total primary horsepower equipment of these companies in 1907 as compared with 25.6 per cent in 1902. The income of these companies from electric-railway service increased from \$2,301,343 in 1902 to \$7,829,275 in 1907, an increase of 240.2 per cent. This shows a large increase in the utilization of water power by electric-power companies, and through them by the traction companies purchasing current.

Table 16 shows for 1907 and 1902 the equipment of the power and electrical generating plants, and the output of stations, by character of primary power.

While there was an increase of 83.6 per cent in the horsepower of the primary generators, the capacity of the electrical generators increased 91.8 per cent. It is possible that improved operating conditions have actually decreased the margin of excess capacity of the prime movers over the secondary generators, but the disproportion is doubtless due mainly to the practice—which in recent years has become necessary—of carrying large installations of reserve electrical apparatus. Also some new roads have installed electrical equipment for future development, while the power-plant installations meet the present requirements only. At both censuses, moreover, for a considerable proportion of the generator capacity, which was idle all or a part of the year, no engines or wheels were reported. Again, the number of companies purchasing current was much larger in 1907 than in 1902, and some of these companies retained a part of the electrical equipment of the power plants they had ceased to operate.

In 1907 steam power represented 95.6 per cent of the total power; water power, 3.7 per cent; and gas power, seven-tenths of 1 per cent. In 1902 the corresponding proportions were 96.2, 3.6, and one-tenth of 1 per cent. The increase in the use of water and gas power was larger than these figures would indicate. In 1907 water power was used either wholly or in part by 47 companies, and idle equipment for

the utilization of such power was reported by 1 company, while in 1902 water power was reported by 38 companies. Gas engines were used by 16 companies in 1907, while in 1902 gas power was reported by only 6 companies and idle equipment was reported by 1 company.

In 1907, 8 companies, with 47.50 miles of track, used water power exclusively, and 515 companies, with 25,469.42 miles of track, used either steam power exclusively or steam and water power, while in 1902, 6 companies, with 43.73 miles of track, used water power exclusively, and 532 companies, with 19,526.68 miles of track, used steam power exclusively or steam and water power.

The number of companies using steam, water, or gas power exclusively may be understated in Table 16, since steam equipment is sometimes carried as a reserve with water and gas power, and every company that reported more than one kind of primary generators was assigned to one of the mixed groups.

The generator capacity per car is an indication of the efficiency of the machines for companies that did not sell current but not for companies that used current for purposes other than the operation of cars. As the output of stations reported for all companies includes a large amount of current sold for commercial uses, the comparison based on the total output, therefore, has little significance.

STREET AND ELECTRIC RAILWAYS.

TABLE 16.—POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS OF COMPANIES.

		TOTAL.		EQUIPMENT.	
		1907	1908	Steam power exclusively.	
				1907	1908
1	Number of operating companies with power plants.....	576	577	476	500
2	Power houses, number.....	829	1,805	689	709
3	Total horsepower.....	2,478,479	1,349,211	2,010,133	1,228,593
4	Steam engines and turbines.....	2,511	2,335	2,136	2,197
5	Number.....	2,368,153	1,298,133	2,010,133	1,228,598
6	Horsepower.....				
7	Gas engines.....	41	13		
8	Number.....	16,333	1,925		
9	Horsepower.....				
10	Water wheels.....	228	159		
11	Number.....	91,967	49,153		
12	Horsepower.....				
13	Dynamos.....	3,124	3,302	2,488	2,979
14	Number.....	1,723,416	808,362	1,417,903	828,645
15	Kilowatt capacity.....				
16	Direct-current.....	2,192	2,861	1,751	2,608
17	Number.....	941,562	725,846	777,280	678,932
18	Kilowatt capacity.....	932	441	737	371
19	Number.....	781,914	173,016	640,623	149,713
20	Kilowatt capacity.....	4,750,130.100	2,261,484.397	4,066,046.879	2,135,237.895
21	Output of stations, kilowatt hours, total for year.....	71,943	61,632	59,521	55,709
22	Cars, number for companies with power plants.....	28,180.12	20,376.67	23,790.38	18,575.30
23	Miles of track for companies with power plants.....				
PER CENT OF INCREASE.					
		Total.		Steam power exclusively.	
19	Number of operating companies with power plants.....		0.2		4.8
20	Power houses, number.....		3.0		9.9
21	Total horsepower.....		83.6		63.6
22	Steam engines and turbines—				
23	Number.....		7.5		2.4
24	Horsepower.....		82.4		63.6
25	Gas engines—				
26	Number.....		173.3		
27	Horsepower.....		788.6		
28	Water wheels—				
29	Number.....		43.4		
30	Horsepower.....		87.1		
31	Dynamos—				
32	Number.....		15.4		16.5
33	Kilowatt capacity.....		91.8		71.1
34	Direct-current—				
35	Number.....		23.4		32.9
36	Kilowatt capacity.....		29.8		14.5
37	Alternating-current—				
38	Number.....		111.3		94.7
39	Kilowatt capacity.....		351.9		327.9
40	Output of stations, kilowatt hours, total for year.....		110.4		90.4
41	Cars, number for companies with power plants.....		16.9		6.8
42	Miles of track for companies with power plants.....		38.0		22.7

¹ Includes 11 power plants reported by 10 companies without power-plant equipment.

² Includes 2,500,000 kilowatts for 1 company which did not report power-plant equipment.

³ Decrease.

POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS.

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CLASSIFIED ACCORDING TO CHARACTER OF POWER: 1907 AND 1902.

EQUIPMENT—continued.									
Gas-engine power exclusively.		Water power exclusively.		Mixed steam and gas-engine power.		Mixed steam and water power.		Idle power-plant equipment.	
1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
8	3	8	6	8	3	39	32	37	33
8	3	9	7	32	12	117	53	24	7
6,545	950	4,770	2,945	179,165	30,125	254,541	82,256	21,325	4,340
				113	34	221	88	41	19
				109,375	29,250	167,650	30,050	21,025	4,240
				25	7				2
16	6			9,790	875				100
6,545	950								
		21	19			206	140	1	
		4,770	2,945			86,891	46,206	300	
				158	16	374	222	73	62
17	7	14	16	112,409	12,455	160,294	48,122	26,635	7,035
4,030	478	3,145	1,007						
				131	16	230	162	58	58
11	7	11	10	77,051	12,455	69,161	25,586	14,865	6,824
1,380	478	1,745	1,071						
				27		144	60	15	4
6		3	6	85,358		91,133	22,535	10,730	231
2,650		1,400	534	285,514,851	36,502,246	305,743,896	86,205,146		
3,065,899	1,201,092	5,308,674	2,187,998	6,376	2,910	4,070	2,145	1,773	740
165	46	88	52	1,263.35	336.69	2,679.04	931.38	1,168.99	442.57
160.86	27.00	47.60	43.73						
PER CENT OF INCREASE—continued.									
Gas-engine power exclusively.		Water power exclusively.		Mixed steam and gas-engine power.		Mixed steam and water power.		Idle power-plant equipment.	
	166.7		33.3		166.7		21.9		12.1
	166.7		28.6		166.7		120.8		242.9
	588.9		62.0		694.7		269.4		291.4
					232.4		157.0		115.8
					479.1		365.0		395.9
	166.7				257.1				100.0
	588.9				1,018.9				100.0
			10.5				47.1		
			62.0				184.0		
	142.9		12.5		897.5		68.5		17.7
	743.1		93.7		892.5		233.1		263.4
	57.1		10.0		718.8		42.0		
	188.7		62.9		518.6		170.3		118.1
			50.0				140.0		275.0
			161.2				304.4		4,553.7
	229.4		145.4		680.3		358.8		
	264.7		69.2		119.1		89.7		139.6
	495.8		8.6		275.2		181.6		164.1

TABLE 17.—PER CENT DISTRIBUTION OF POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS OF COMPANIES, CLASSIFIED ACCORDING TO CHARACTER OF POWER: 1907 AND 1902.

	PER CENT OF TOTAL FOR ALL COMPANIES.											
	Steam power exclusively.		Gas-engine power exclusively.		Water power exclusively.		Mixed steam and gas-engine power.		Mixed steam and water power.		Idle power-plant equipment.	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
Number of operating companies with power plants.....	82.6	85.7	1.4	0.5	1.4	1.0	1.4	0.5	6.8	5.5	6.4	5.7
Power houses, number.....	77.1	88.1	1.0	0.4	1.1	0.9	3.9	1.5	14.1	6.6	2.9	0.9
Total horsepower.....	81.2	91.1	0.3	0.1	0.2	0.2	7.2	2.2	10.3	6.1	0.9	0.3
Steam engines and turbines												
Number.....	85.1	94.0					4.5	1.5	8.8	3.7	1.6	0.8
Horsepower.....	84.9	94.6					7.2	2.3	7.1	2.8	0.9	0.3
Gas engines—												
Number.....			39.0	10.0			61.0	66.7				12.2
Horsepower.....			40.1	49.4			59.9	45.5				5.2
Water wheels—												
Number.....					9.2	11.9			90.4	88.1	0.4	
Horsepower.....					5.2	6.0			94.5	94.0	0.3	
Dynamics—												
Number.....	79.6	90.2	0.5	0.2	0.4	0.5	5.1	0.5	12.0	6.7	2.3	1.9
Kilowatt capacity.....	82.3	92.2	0.2	0.1	0.2	0.2	6.5	1.4	9.3	5.4	1.5	0.8
Direct-current—												
Number.....	79.9	91.2	0.5	0.2	0.5	0.3	6.0	0.6	10.5	5.7	2.6	2.0
Kilowatt capacity.....	82.7	93.6	0.1	0.1	0.2	0.1	8.2	1.7	7.3	2.5	1.6	0.9
Alternating-current—												
Number.....	79.1	84.1	0.6		0.3	1.4	2.9		15.5	13.6	1.6	0.9
Kilowatt capacity.....	81.9	89.5	0.3		0.2	5.3	4.5		11.7	12.0	1.4	0.1
Output of stations, kilowatt hours, total for year.....	85.4	94.4	0.1	0.1	0.1	0.1	6.0	1.6	8.3	3.8		
Cars, number for companies with power plants.....	82.7	90.4	0.2	0.1	0.1	0.1	3.9	4.7	5.7	3.5	2.5	1.2
Miles of track for companies with power plants.....	81.1	91.2	0.6	0.1	0.2	0.2	4.5	1.7	9.5	4.7	4.2	2.2

Steam power.—There has been a greater absolute increase in steam than in any of the other kinds of power. The capacity of this class of machinery increased by 1,070,050 horsepower, or 82.4 per cent, in 1907 as compared with 1902. The use of large steam turbines has been an important factor in this increase of steam power. No steam turbines were reported separately in 1902, whereas in 1907 the horsepower of the 252 steam turbines in use amounted to 535,404, or 22.6 per cent, of the total steam horsepower.

The use of steam power exclusively was reported by 476 companies in 1907 and by 500 in 1902, not including those reporting idle equipment. The companies using steam exclusively as a primary power represented about nine-tenths of the total horsepower reported for all systems in 1902 and a little over four-fifths in 1907. On the other hand, the proportions of the total horsepower for companies using steam and water power and for the companies using steam and gas power increased between 1902 and 1907. Although the companies that reported equipment for both steam and gas power had a comparatively small percentage of the total, the increase in the proportion was greater for them than for the companies with equipment for steam and water power. Altogether, the railways using steam generators had 98.7 per cent of the total indicated horsepower in 1907 and 99.4 per cent in 1902.

The companies relying entirely upon steam for primary power operated an average of 125 cars and 47.88 miles of track per company, as compared with corresponding averages of 125 and 48.80 for all operating companies.

Gas-engine power.—Gas engines are still a comparatively unimportant factor in the power equipment

of electric railways, though they seem to be growing in favor. The reports for 1902 showed only 15 gas engines with 1,925 horsepower, including 2 engines with a combined capacity of 100 horsepower reported as idle, while in 1907 there were 41 gas engines with 16,335 horsepower. Of the 16 companies using gas engines in 1907, 8 reported them as the only kind of machine used to generate the primary power. The other 8 companies used both gas and steam engines.

As a rule the companies using gas engines exclusively operate small systems, although large engines of this type are now in operation. The reports for 1907 showed 7 gas engines, with more than 500 horsepower each and with an aggregate of 7,900 horsepower. While the railways using gas engines as the exclusive primary power in 1907 were few in number and their mileage and power-plant equipment were relatively unimportant, they exceeded in mileage and power equipment the railways using water power exclusively. The average number of cars per system in 1907 for companies that reported gas engines as their sole primary power was only 21. The companies that used gas engines reported 7.5 per cent of the total horsepower for all railways in 1907, as compared with only 2.3 per cent of the total in 1902.

Water power.—The increase in water power has been referred to in connection with Tables 13 and 16. In 1902, 6 companies and in 1907, 9 companies, including 1 reporting idle power-plant equipment, reported water as the exclusive primary power.

Water power alone has made but little progress in the railway industry directly during the last five years, and still remains a small factor in the aggregate power and power-plant equipment. A considerable quantity of current generated by water power is used for electric traction, but the major portion of

current so generated is purchased from hydro-electric power plants and long-distance transmission companies.

Auxiliary engines.—The auxiliary engines used in main power plants for miscellaneous work increased from 301 engines with 10,074 horsepower in 1902 to 857 engines with 43,344 horsepower in 1907, an increase of 184.7 per cent in number and 330.3 per cent in horsepower. These engines have not been included in the statistics for primary-power equip-

ment, but many of them are of considerable size and they are coming into more general use in the large plants.

Power-plant equipment and output of stations of companies, classified according to income from railway operations.—Table 18 shows the power-plant equipment and output of stations for all companies, classified according to income from railway operations, for 1907 and 1902.

TABLE 18.—POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

	TOTAL, ALL COMPANIES.		CLASSIFICATION GROUP.					
			\$1,000,000 and over.		\$500,000 but less than \$1,000,000.		\$250,000 but less than \$500,000.	
			(A)		(B)		(C)	
	1907	1902	1907	1902	1907	1902	1907	1902
Number of operating companies.....	945	817	77	44	50	28	82	57
Power houses, number.....	829	805	241	194	76	37	81	94
Total horsepower.....	2,476,479	1,349,211	1,566,880	736,832	198,684	96,830	193,930	127,473
Steam engines and turbines—								
Number.....	2,511	2,336	1,009	793	247	151	264	294
Horsepower.....	2,368,183	1,298,133	1,577,444	725,560	177,139	96,420	183,705	126,128
Gas engines—								
Number.....	41	15	7	5			4	
Horsepower.....	16,335	1,925	5,740	600			1,640	
Water wheels—								
Number.....	228	150	23	18	19		35	5
Horsepower.....	91,901	49,153	13,696	10,872	11,545		8,475	1,346
Dynamos—								
Number.....	3,124	2,302	1,149	1,002	322	194	316	409
Kilowatt capacity.....	1,723,416	898,382	1,098,101	477,556	137,394	66,812	131,265	87,257
Direct-current—								
Number.....	2,192	2,851	887	995	245	180	184	351
Kilowatt capacity.....	941,502	725,346	607,191	393,926	77,449	58,175	62,915	71,394
Alternating-current—								
Number.....	932	441	262	67	77	14	132	48
Kilowatt capacity.....	781,914	173,016	489,910	83,630	59,945	8,637	68,350	15,663
Output of stations, kilowatt hours, total for year.....	4,750,130,100	2,261,464,397	3,491,483,244	1,421,910,468	331,467,001	196,119,892	331,327,537	210,825,064
Cars, total number.....	83,641	66,784	35,692	41,702	8,194	5,332	6,129	5,470
Miles of track.....	34,403.56	22,576.99	15,564.34	8,414.31	4,386.24	2,127.29	4,009.76	2,782.59

CLASSIFICATION GROUP—continued.

	\$100,000 but less than \$250,000.		Less than \$100,000.		Per cent of total.									
	(D)		(E)		A		B		C		D		E	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
Number of operating companies.....	183	116	553	572	8.1	5.4	5.3	3.4	8.7	7.0	19.4	14.2	58.5	70.0
Power houses, number.....	152	127	279	303	29.1	22.9	9.2	4.6	9.8	11.7	18.3	13.8	33.7	45.1
Total horsepower.....	279,569	156,453	217,516	231,631	84.5	54.6	7.6	7.2	7.8	9.4	11.3	11.6	8.8	17.2
Steam engines and turbines—														
Number.....	433	353	558	745	40.2	33.9	9.8	6.5	10.5	12.6	17.2	15.1	22.2	31.9
Horsepower.....	285,819	140,210	194,076	200,415	66.6	55.9	7.5	7.5	7.8	9.7	10.0	10.8	8.2	16.1
Gas engines—														
Number.....	6	1	24	9	17.1	33.3			0.8		14.6	6.7	38.5	60.0
Horsepower.....	1,060	75	7,895	1,450	33.1	20.8			10.1		6.5	3.9	48.3	75.3
Water wheels—														
Number.....	69	28	82	108	10.1	11.3	8.3		15.4	3.1	30.3	17.6	26.0	67.9
Horsepower.....	62,690	16,170	15,555	20,766	14.9	22.1	12.6		9.2	2.7	46.4	32.9	16.9	42.3
Dynamos—														
Number.....	550	484	787	1,153	36.8	32.2	10.3	5.9	10.1	12.4	17.6	14.7	23.2	34.9
Kilowatt capacity.....	191,470	103,797	167,186	162,940	63.6	53.2	8.0	7.4	7.6	9.7	11.1	11.6	9.7	18.1
Direct-current—														
Number.....	359	394	517	631	40.5	34.8	11.2	6.3	8.4	12.6	16.4	13.8	23.6	32.5
Kilowatt capacity.....	98,300	76,732	96,647	124,019	64.5	54.3	8.2	8.0	6.7	9.9	10.4	10.6	10.2	17.3
Alternating-current—														
Number.....	191	90	270	222	28.1	15.2	8.3	3.2	14.2	10.9	20.5	20.4	29.0	50.3
Kilowatt capacity.....	93,170	27,065	71,539	38,021	48.3	48.3	7.7	5.0	8.7	9.1	11.9	15.6	9.1	22.0
Output of stations, kilowatt hours, total for year.....	387,651,740	196,200,830	217,000,578	236,228,123	73.4	62.9	7.0	8.7	7.0	9.3	8.1	8.7	4.6	10.5
Cars, total number.....	7,304	5,956	6,322	8,324	8.8	6.8	8.0	7.3	8.2	8.7	8.9	7.6	12.5	7.6
Miles of track.....	4,979.68	3,479.97	5,463.54	5,773.83	43.2	37.3	12.7	9.4	11.7	12.3	14.5	15.4	15.9	23.6

The statistics indicate not only the increase in the average size of companies but also the extent to which the larger companies dominate the industry. In the

case of Class E, which contains the smallest companies, the ratios show a decided falling off in 1907 as compared with 1902, while for Class A, which contains the

largest companies, increased proportions are shown for all important items. The changes in the intermediate classes are not so marked as those in the extreme classes.

In 1907 Class A, the largest companies, was credited with almost two-thirds of the primary horsepower and about the same proportion of the kilowatt capacity of the electrical generators reported by all companies; with almost three-fourths of the total output of stations; two-thirds the number of cars; and upward of one-half of the total miles of track. Although in 1907 the number of power houses for railways in Class E, companies with the smallest incomes, exceeded by 38 the number in Class A, the largest incomes, their primary power and the capacity of their dynamos constituted less than one-tenth of the total capacity of all

plants and the output of their stations was less than one-twentieth of that for all railways.

Nearly two-thirds of the primary steam power in 1907 was reported for Class A, whereas over two-fifths of the total water power was reported for Class D, companies with an income of \$100,000 but less than \$250,000, and almost one-half of the total power derived from gas engines was returned for railways in Class E, the smallest companies.

Power-plant equipment and output of stations of companies, classified according to kind of system and character of service.—A presentation of the power-plant equipment for selected groups of railways is given in Table 19, the division of the statistics being based upon the kind of system and the character of service.

TABLE 19. POWER-PLANT EQUIPMENT AND OUTPUT OF STATIONS OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of operating companies.....	915	6	939	50	100	795
Power houses, number.....	829	7	822	81	18	727
Total horsepower.....	2,478,479	157,900	2,318,579	223,133	7,630	2,247,316
Steam engines and turbines—						
Number.....	2,511	50	2,461	255	17	2,259
Horsepower.....	2,368,195	157,900	2,210,295	218,288	3,470	2,146,425
Gas engines—						
Number.....	41		41	4	1	36
Horsepower.....	16,435		16,335	1,450	110	14,575
Water wheels—						
Number.....	228		228	14	10	204
Horsepower.....	91,061		91,961	3,195	2,450	86,316
Dynamos—						
Number.....	3,124	44	3,080	273	37	2,814
Kilowatt capacity.....	1,723,416	124,780	1,598,636	146,867	5,934	1,570,615
Direct-current—						
Number.....	2,102	44	2,148	124	31	2,037
Kilowatt capacity.....	941,502	124,780	816,722	30,022	4,072	907,419
Alternating-current—						
Number.....	932		932	149	6	777
Kilowatt capacity.....	781,914		781,914	116,845	1,862	663,197
Output of stations, kilowatt hours, total for year.....	4,759,130,100	428,019,072	4,331,111,028	415,219,494	2,647,176	4,341,265,430
Cars, total number.....	53,041	4,453	70,188	5,259	618	77,764
Miles of track.....	34,003.56	420.40	33,983.16	5,547.11	560.09	28,275.76

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

While the elevated and subway roads had a comparatively large average of power-plant equipment per company, they controlled a very small proportion of the equipment for all roads. The statistics in Table 19 do not show the real magnitude of the power equipment required to operate these railways, because 4 of the 6 companies purchased all or part of their current. It is of interest to note that the use of water wheels, gas engines, and alternating-current generators was confined to surface railways, as no generators of these types were reported in 1907 by the elevated and subway systems.

The power-plant equipment of the 100 selected small urban roads formed but a small proportion of the total for all roads. Of these small roads, 84 purchased all of the current used for the operation of cars, while of the 50 interurban lines, only 11 purchased

their entire current. On the other hand, all but 7 of the 50 selected interurban roads reported substation equipment, while only 7 of the 100 small roads had substations. The figures indicate the differences in the power equipment required for the large and the small companies for which the statistics are compared in other tables.

Dynamos.—The capacity of the generators, transformers, and other electric apparatus was reported in horsepower in 1902, but for the purpose of comparison with 1907 the total horsepower has been reduced to kilowatts. The indicated voltage, amperage, and the total capacity in kilowatts was returned for each machine, but only the total capacity was used in summarizing the returns. As shown in Table 13, the total number of dynamos decreased 178, or 5.4 per cent, in 1907 as compared with 1902, while the indicated

capacity increased 825,054 kilowatts. The entire decrease in number was in the direct-current machines.

The direct-current dynamos formed 70.2 per cent of the total number and represented 54.6 per cent of the total kilowatt capacity of both varieties of machines in 1907. Electrical generators were reported by 568, or all but 8, of the operating companies with power-plant equipment in 1907 as compared with 564, or all but 13, of the number of companies that reported dynamos in 1902. Of these companies, 283 in 1907 had 932 alternating-current machines, with a total capacity of 781,914 kilowatts, and 163 in 1902 had 441 alternating-current dynamos, with a total capacity of 173,016 kilowatts.

Only 69 roads were operated by the use of alternating machines exclusively in 1907, and these were equipped with 215 dynamos of 198,135 kilowatt capacity. In 1902, 13 roads had 29 alternating dynamos exclusively, of 14,372 kilowatt capacity. The large increase in this class of generators is due in part to the increasing practice of generating current for sale for general commercial use.

Transformers in main power plant.—Next to the engine and dynamo the transformer may be regarded as the most important machine directly connected with the utilization of the current. The number of these machines increased 119.3 per cent and the kilowatt capacity 414 per cent in 1907 as compared with 1902 (see Tables 13 and 22). In 1907 transformers were reported by 171 railway companies, and in 1902 by 67 such companies.

Storage batteries in main power plant.—There were 18,437 storage-battery cells reported in 1902, while in 1907 there were only 16,489 such cells, the decrease in number being 10.6 per cent. An attempt was made at both censuses to ascertain the capacity of storage-battery cells, but the results were so unsatisfactory that it was decided to abandon this feature and confine the statistics to the number of cells.

Boosters in main power plant.—Boosters, used in power plants for outside feeders, increased 28.8 per cent in number and 24.7 per cent in kilowatt capacity in 1907 as compared with 1902.

Auxiliary generators in main power plant.—This group of machines includes a considerable number of "exciters." The auxiliary generators increased rapidly between 1902 and 1907, the number showing a gain of 338 per cent and the capacity a gain of 409 per cent. While these machines are in reality dynamos, they do not generate current for delivery to the line and were therefore classed as auxiliary equipment.

Rotaries and motor-generator sets in main power plant.—The increase in rotaries and motor-generator sets in main generating stations also was very large,

being 192.8 per cent in number and 363.1 per cent in capacity.

Electric motors used in main power plant or substation.—The electric motors used in power plants or substations for miscellaneous work increased from 518, of 15,154 horsepower, in 1902 (432 direct current, of 10,053 horsepower, and 86 alternating current, of 5,101 horsepower), to 2,168, of 50,777 horsepower, in 1907 (1,462 direct current, of 29,872 horsepower, and 706 alternating current, of 20,905 horsepower).

Output of stations.—Each railway company reported the average daily output of its power plant in kilowatt hours and the total number of kilowatt hours for the entire period it was in operation during the census year. In many instances the output stated was necessarily an estimate based either on actual readings of dynamo meters for selected periods, or, as in a few cases, on the total capacity of the generators. The aggregate, however, may be accepted as a close approximation of the amount of current generated in the power plants of electric railways during the twelve months covered by the reports. The 805 power houses included in the census of 1902 reported the output for the year as 2,261,484,397 kilowatt hours as compared with 4,759,130,100 kilowatt hours for the 829 power houses included in the report of 1907. The increase in 1907 over 1902 amounted to 2,497,645,703 kilowatt hours, or 110.4 per cent. The average output per machine for the 3,302 dynamos reported for 1902 was 684,883 kilowatt hours, while the average for the 3,124 reported for 1907 was 1,523,409 kilowatt hours. At each census the total number of power houses reported included some that were not used for generating current and some that were idle, and the total number of dynamos reported also included some machines that were idle.

The output of stations showed an average of 1.98 kilowatt hours per car mile for 1902 and 2.94 kilowatt hours for 1907. These general averages, however, are based on the reports for all classes of companies, many of which operated commercial lighting plants and sold a large part of the current. For such plants it is impossible to ascertain the quantity of current consumed in the operation of cars. On the other hand, the total car mileage included a considerable amount of car mileage for animal, cable, steam, and gasoline-motor traffic, for which there is no current consumption. The general average is therefore of little value, except for comparative purposes. It should not be accepted as indicating the actual amount of current consumed per car mile.

Table 20 shows the kilowatt hours produced and other statistics for companies that did not buy or sell current in 1907.

STREET AND ELECTRIC RAILWAYS.

TABLE 20.—MISCELLANEOUS STATISTICS FOR ELECTRIC RAILWAYS THAT DID NOT BUY OR SELL CURRENT, BY STATES AND GEOGRAPHIC DIVISIONS: 1907.

STATE OR TERRITORY.	Number of operating companies.	Miles of track.	NUMBER OF CARS.					CAR MILEAGE.			NUMBER OF PASSENGERS.	
			Total.	Passenger.	All other.	Lighted by electricity.	Heated by electricity.	Total.	Passenger.	Express, freight, mail, etc.	Total.	Fare.
United States.....	176	7,341.73	20,636	18,240	2,396	19,369	9,011	406,166,204	400,238,768	5,927,436	2,490,551,629	1,967,951,933
North Atlantic division.....	88	3,333.26	10,996	9,548	1,450	10,489	6,040	207,416,548	203,942,972	3,473,576	1,290,247,690	1,050,125,115
Massachusetts.....	11	267.91	418	329	89	382	141	5,705,791	5,566,735	109,056	27,042,539	24,582,299
Connecticut.....	4	197.79	152	111	41	122	47	1,943,109	1,915,985	27,044	8,969,382	8,051,045
New York.....	22	997.06	4,235	3,687	548	4,084	2,573	78,543,434	76,184,403	2,359,031	537,924,893	396,944,592
New Jersey.....	6	146.57	186	169	17	172	83	4,354,434	4,348,974	5,460	20,378,594	16,751,343
Pennsylvania.....	39	1,425.22	4,910	4,365	545	4,832	2,720	102,336,170	101,745,194	590,976	599,340,674	520,261,878
All other North Atlantic states ¹	6	388.71	1,097	887	210	897	476	14,533,680	14,151,671	382,009	96,562,617	83,533,759
South Atlantic division.....	10	583.06	2,414	2,234	180	2,361	514	41,290,072	40,883,977	406,095	270,661,059	195,651,012
Maryland.....	3	458.99	1,694	1,542	152	1,652	287	27,020,387	27,546,122	374,265	205,182,582	146,545,182
All other South Atlantic states ²	7	124.07	720	692	28	709	227	13,369,685	13,337,855	31,830	65,478,477	49,105,830
North Central division.....	54	2,645.19	5,450	4,959	591	5,036	1,604	116,782,093	115,260,536	1,521,557	686,364,931	531,197,680
Ohio.....	17	1,176.26	3,356	3,014	342	3,093	1,052	65,594,433	64,719,092	785,371	410,782,821	312,358,112
Indiana.....	9	302.30	192	141	51	161	45	5,295,853	4,961,122	334,731	12,723,732	10,712,893
Illinois.....	10	222.55	763	690	73	698	437	15,486,394	15,367,882	118,512	50,900,267	54,071,091
Michigan.....	3	291.93	301	238	63	265	1	6,251,540	6,032,926	198,614	31,192,327	24,418,764
Wisconsin.....	5	100.28	125	117	8	123	17	2,244,812	2,242,184	2,628	6,387,014	5,363,534
Iowa.....	3	135.46	82	70	12	74	11	1,261,944	1,260,501	52,383	4,238,885	3,818,636
Kansas.....	3	44.45	35	29	6	28	19	519,696	508,716	10,980	2,451,144	2,372,082
All other North Central states ³	4	371.87	694	574	20	594	21	20,307,983	20,307,983		133,506,741	118,066,918
South Central division.....	19	539.33	1,306	1,180	125	1,241	574	27,833,561	27,378,097	455,464	158,280,191	125,618,702
Kentucky.....	5	208.97	550	500	50	537	398	12,116,389	11,770,016	346,373	69,902,956	52,416,518
Texas.....	6	106.83	220	203	17	205	5	4,413,795	4,347,224	66,571	26,550,517	22,520,026
All other South Central states ⁴	8	223.53	535	477	58	499	171	11,273,377	11,260,857	12,520	61,775,718	50,682,219
Western division.....	5	240.89	469	409	60	442	279	12,843,328	12,764,186	79,142	54,988,749	46,350,464
Colorado and California.....	5	240.89	469	409	60	442	279	12,843,328	12,764,186	79,142	54,988,749	46,350,464

STATE OR TERRITORY.	NUMBER OF PASSENGERS—continued.		ENGINES AND WATER WHEELS.		DYNAMOS.		Output of stations, kilowatt hours, total for year.	Cost of operating power plants.	Fare passengers per mile of track.	Fare passengers per passenger-car mile.	Kilowatt consumption per car mile.	Cost of current per kilowatt hour (cents).
	Transfer.	Fron.	Number.	Horse-power.	Number.	Kilowatt capacity.						
United States.....	501,214,274	21,385,822	670	675,353	707	454,957	1,324,923,632	28,628,396	268,050	4.92	3.26	0.7
North Atlantic division.....	230,565,663	9,566,921	340	334,349	342	230,879	704,714,298	4,286,299	315,044	5.15	3.40	0.6
Massachusetts.....	2,280,295	190,946	33	11,225	36	8,647	18,386,670	194,701	91,756	4.39	3.22	1.1
Connecticut.....	708,719	148,618	11	5,325	14	3,800	5,341,253	72,642	71,092	4.20	2.75	1.4
New York.....	138,118,329	2,881,972	93	138,035	89	63,905	310,634,555	1,908,243	398,115	5.21	3.95	0.6
New Jersey.....	3,315,853	311,198	13	6,940	15	5,300	12,307,997	90,331	114,200	3.85	2.83	0.7
Pennsylvania.....	74,524,452	4,355,344	164	147,754	164	99,967	304,857,906	1,541,452	365,680	5.11	2.98	0.5
All other North Atlantic states ¹	11,579,015	1,479,843	26	25,070	24	19,260	53,079,827	388,020	214,900	5.90	3.65	0.7
South Atlantic division.....	71,327,912	3,682,235	60	78,950	67	48,456	121,620,542	913,457	333,559	4.79	2.96	0.8
Maryland.....	35,165,381	3,471,419	33	64,725	36	37,435	102,951,946	725,579	319,279	5.32	3.60	0.7
All other South Atlantic states ²	16,162,231	210,416	27	15,225	31	11,021	18,668,596	189,878	395,791	3.68	1.40	1.0
North Central division.....	150,559,984	4,697,367	210	204,339	228	137,842	293,231,080	2,391,267	200,916	4.61	3.37	0.7
Ohio.....	102,045,282	2,379,427	101	89,074	114	63,309	194,760,300	1,322,671	265,552	4.83	2.97	0.7
Indiana.....	1,434,719	376,171	20	15,160	22	10,425	16,985,488	178,292	27,302	2.20	3.26	1.0
Illinois.....	4,693,508	315,668	30	31,350	36	18,114	57,344,847	312,960	242,062	3.52	3.70	0.5
Michigan.....	5,690,263	1,173,300	10	9,700	10	6,800	24,132,840	156,698	120,927	4.08	3.86	0.6
Wisconsin.....	922,150	101,321	12	4,850	13	3,020	3,327,545	47,302	53,496	2.39	1.48	1.4
Iowa.....	420,249		8	5,350	6	3,550	3,114,010	37,638	28,190	3.16	2.47	1.2
Kansas.....	31,982	61,500	6	2,025	6	1,300	1,460,800	13,726	53,041	4.63	2.61	0.9
All other North Central states ³	35,411,923		23	46,830	21	31,424	92,086,140	524,390	317,576	5.82	4.33	0.6
South Central division.....	30,508,356	2,165,073	51	40,715	52	27,080	73,398,907	616,477	232,916	4.60	2.64	0.8
Kentucky.....	16,590,492	965,956	17	19,200	15	12,850	36,333,313	202,048	250,833	4.45	3.00	0.6
Texas.....	3,914,763	115,728	13	5,340	15	3,895	10,637,282	133,390	210,812	5.18	2.39	1.3
All other South Central states ⁴	10,000,111	1,083,389	21	16,175	22	10,335	26,418,312	281,049	226,736	4.50	2.34	1.1
Western division.....	18,255,459	1,373,826	18	16,000	18	10,600	31,964,825	218,006	271,225	5.12	2.40	0.7
Colorado and California.....	18,255,459	1,373,826	18	16,000	18	10,600	31,964,825	218,006	271,225	5.12	2.40	0.7

¹ Includes states as follows: New Hampshire, 2; Rhode Island, 2; Vermont, 2.² Includes states as follows: Delaware, 2; District of Columbia, 1; Florida, 1; Georgia, 1; Virginia, 1; West Virginia, 1.³ Includes states as follows: Minnesota, 1; Missouri, 1; North Dakota, 2.⁴ Includes states as follows: Alabama, 1; Arkansas, 1; Louisiana, 2; Mississippi, 2; Tennessee, 2.

From the statistics of electric-railway companies that did not operate commercial lighting plants and that neither bought nor sold current, certain deductions can be drawn with respect to car mileage, number of passengers, and the consumption and cost of current. Any such deductions, however, have to be of the most general character, as even the companies which neither bought nor sold current were not on an equal footing in regard to current consumption. Practically all of the lighting of cars for all companies of this class was electrical, but the use of electric current for car heating varied greatly. The consumption of current for car heating was proportionately greater in the North Atlantic division than in the North Central division, where stoves and hot-water systems were used to a larger extent. Again, not all companies were equally exact in the keeping of car-mileage records. In some cases, though a record was kept of all regular trips, the companies did not take equal pains with work-car mileage and trips not made on a regular schedule. The consumption of current is also affected by the condition of the rail bonds. Some roads, more particularly those in rural districts, suffer from theft of the copper bonds, and the kilowatt consumption per car mile is thus increased.

The consumption of current per car mile in 1907 for railways that did not buy or sell current averaged 3.26 kilowatt hours for the United States and ranged, in the different states reporting three or more companies, from a minimum of 1.48 kilowatt hours for Wisconsin to a maximum of 3.95 kilowatt hours for New York. The cost of current per kilowatt hour also shows a wide range, from 0.5 cent per kilowatt hour in Illinois and Pennsylvania to nearly three times that amount (1.4 cents) in Connecticut and Wisconsin. Although the figures shown for the cost of current per kilowatt hour by states vary materially, the averages for the different geographic divisions conform closely to that for the United States. The use of water power, the proximity to cheap fuel, and the presence of centralized power stations in large urban centers are important factors influencing the cost of power units.

At the census of 1902 statistics of power consumption were presented for a group of 307 selected railways that did not buy or sell current. The corresponding group for 1907 contains only 176 companies. That the practice of buying and selling current was much more prevalent among electric railways in 1907 than in 1902 is brought out very clearly by the statistics for these groups of companies.

TABLE 21.—CAR MILEAGE, PASSENGERS, AND POWER CONSUMPTION OF ELECTRIC RAILWAYS THAT DID NOT BUY OR SELL CURRENT, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	Number of operating companies.	CAR MILEAGE.			Number of fare passengers.	Output of stations, kilowatt hours, total for year.	Kilowatt consumption per car mile.	Fare passengers per passenger-car mile.
			Total.	Passenger.	Express, freight, mail, etc.				
United States.....	1907	176	405,166,204	400,238,766	5,927,436	1,907,951,933	1,324,923,632	3.26	4.92
	1902	307	491,023,555	487,217,352	3,806,203	1,936,800,800	1,048,709,320	2.14	3.98
North Atlantic.....	1907	84	207,416,548	203,942,972	3,473,576	1,050,125,115	704,718,298	3.40	5.15
	1902	150	208,982,827	207,319,041	1,563,786	949,837,986	451,497,918	2.16	4.58
South Atlantic.....	1907	10	41,290,072	40,863,977	406,095	185,651,012	121,630,542	2.95	4.79
	1902	10	20,423,735	20,282,118	141,617	75,030,777	37,080,410	1.83	3.70
North Central.....	1907	54	116,782,895	115,200,536	1,513,159	531,107,580	303,231,069	3.37	4.61
	1902	108	198,255,033	196,706,315	1,548,718	698,297,680	464,298,035	2.34	3.51
South Central.....	1907	19	27,833,501	27,378,097	455,404	125,618,762	73,268,907	2.04	4.09
	1902	19	39,024,353	38,941,885	82,468	133,372,877	55,756,932	1.43	3.42
Western.....	1907	5	12,843,328	12,704,186	79,142	65,359,464	21,964,825	2.49	5.12
	1902	14	24,437,007	24,307,993	129,014	90,521,500	40,185,734	1.64	3.72

The chief interest in the above table centers in the kilowatt consumption per car mile and in the fare passengers per passenger-car mile. The range in kilowatt consumption per car mile for 1907 has been referred to in connection with Table 20. In 1902 the kilowatt consumption per car mile for railways that neither bought nor sold current ranged, for states comprising three or more companies, from a minimum of 0.72 for West Virginia to a maximum of 3.23 for Rhode Island. In every state having three or more companies of this class, with the exception of California and Connecticut, the kilowatt consumption per car mile increased, and the number of fare passengers per car mile also increased in all such states, with the exception of California, Indiana, Iowa, and

Massachusetts. The number of fare passengers per passenger-car mile, for states with at least three such companies in operation, varied in 1902 from a minimum of 2.28 in Wisconsin to a maximum of 4.99 in Pennsylvania, with an average for the United States of 3.98, whereas in 1907 the averages varied from a minimum of 2.20 in Indiana to a maximum of 5.32 in Maryland, with an average of 4.92 for all such companies. For the geographic divisions the highest consumption of current per car mile in 1907 was 3.40 for the North Atlantic division, and the lowest was 2.49 for the Western division. In 1902 the highest consumption (2.34) was reported for the North Central division and the lowest (1.43) for the South Central division. The rapid development of long inter-

urban lines and the more general use of larger cars tend to increase power consumption and are reflected in the increased average kilowatt consumption per car mile.

Substation equipment. Substation equipment was shown for 105 companies in 1902 and for 312 companies in 1907. The units reported consist of rotary converters, motor-generator sets, and similar machines; transformers; storage batteries; and miscellaneous machines, the latter comprising boosters, potential regulators, etc. The number and capacity of the various items of substation apparatus reported at the two censuses is shown in Tables 13 and 22. The increase in the substation equipment has been in general harmony with the increase in the equipment of the generating plants, but a much larger proportion of the companies reported substations in 1907 than in 1902. During the five years between 1902 and 1907 transformers and rotary converters, the most important machines in use in substations, increased very largely—transformers, 296.4 per cent in number and 438.5 per cent in capacity, and rotaries, 352.2 per cent in number and 507.4 per cent in capacity.

The miscellaneous machines in substations aggregated 81 in number, with 9,297 kilowatt capacity, in 1907 as compared with 40 such machines, with 4,651 kilowatt capacity, in 1902. There were reported under this head in 1907, 3 frequency changers, of 4.750 kilowatts; 12 potential regulators, of 197 kilowatts; 36 boosters, including boosters for storage batteries, of 3,111 kilowatts; and 30 other machines—induction motors, constant-current generators, exciter generators, arc machines, and test-battery cells—of 1,239 kilowatt capacity.

Total auxiliary electrical equipment.—A consolidation of auxiliary equipment in main power plants and in substations is necessary to show the total number and capacity of the machines employed in the manipulation of current, as the distinction between power-plant equipment and substation equipment has not in all cases been strictly observed by companies in reporting their equipment. Table 22 shows the total auxiliary electrical equipment in use in 1907 and 1902.

TABLE 22. AUXILIARY ELECTRICAL EQUIPMENT IN MAIN POWER PLANTS AND SUBSTATIONS: 1907 AND 1902.

	TRANSFORMERS.		STORAGE-BATTERY CELLS.		BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
Total number.....	5,274	1,105 ¹	63,694	40,477	134	104 ²	311	171	1,862	441
Kilowatt capacity.....	1,133,161	212,669			17,046	13,666	19,152	3,763	942,232	160,653
In main power plants:										
Number.....	1,603	1,731	16,489	18,437	134	104	311	171	243	83
Kilowatt capacity.....	243,457	47,361			17,046	13,666	19,152	3,763	96,246	20,784
In substations:										
Number.....	3,671	1,026	47,205	22,040					1,619	358
Kilowatt capacity.....	889,704	165,208							845,986	139,269

	MISCELLANEOUS MACHINES.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.		PER CENT OF INCREASE.						
	1907	1902	1907	1902	Trans- formers.	Storage- battery cells.	Boosters for outside feeders.	Auxil- iary genera- tors.	Rotaries and motor- generator sets.	Miscella- neous machines.	Electric motors.
Total number.....	81	40	2,168	518	218.3	57.4	28.8	318.0	352.2	102.5	318.5
Kilowatt capacity.....	9,297	4,651	450,777	15,154	433.1		24.7	400.0	488.7	99.9	235.1
In main power plants:											
Number.....			2,168	518	119.3	110.6	28.8	318.0	192.8		318.5
Kilowatt capacity.....			450,777	15,154	414.0		24.7	400.0	363.1		235.1
In substations:											
Number.....	81	40			296.4	114.2			352.2	102.5	
Kilowatt capacity.....	9,297	4,651			438.5				507.4	99.9	

¹ Exclusive of 23 transformers in main power plants and 14 in substations for which capacity was not reported.

² Exclusive of 3 boosters for which capacity was not reported.

³ Exclusive of 1 constant-current generator for which capacity was not reported.

⁴ Exclusive of 5 rotary converters for which capacity was not reported.

⁵ Exclusive of 3 miscellaneous machines for which capacity was not reported.

⁶ Horsepower.

⁷ Decrease.

In 1907, 21.5 per cent of the kilowatt capacity of the transformers was reported as in main power plants and 78.5 per cent in substations, as compared with 22.3 per cent in power plants and 77.7 per cent in substations in 1902. Of the storage-battery cells, 25.9 per cent was credited to power plants and 74.1 per cent to substations in 1907, as compared with 45.5

per cent in power plants and 54.5 per cent in substations in 1902. In the case of the rotaries, 10.2 per cent of the kilowatt capacity was in power plants and 89.8 per cent in substations in 1907, as compared with 13 per cent in power plants and 87 per cent in substations in 1902.

CHAPTER IV.

TRACK AND ROLLING STOCK.

The statistics in Tables 183 to 187 show all important features concerning the physical equipment of each company. They cover not only the power plants and substations discussed in Chapter III, but the line and track construction and appurtenances, and cars. The track, roadbed, and cars are the features of equipment most closely associated with the comfort of the passengers, and the information concerning them presented in this chapter may well be considered in connection with the statistics of traffic presented in Chapter V.

TRACK AND TRACK EQUIPMENT.

The track reported as operated by the companies embraced in the census of street and electric railways includes not only the first and second main tracks but also sidings, turn-outs, and track in car barns, storage yards, etc. The length of these various kinds of track, expressed in single-track miles, amounted to 34,403.56 miles in 1907 as compared with 22,576.99 miles in 1902, an increase of 11,826.57 miles, or 52.4 per cent, between the two censuses.

TABLE 23. *Track—Character and length: 1907 and 1902.*

CHARACTER.	LENGTH IN MILES.		Per cent of increase.	PER CENT OF TOTAL.	
	1907	1902		1907	1902
Total	34,403.56	22,576.99	52.4	100.0	100.0
First main track	25,547.19	16,645.34	53.5	74.3	73.7
Second main track	6,948.68	45,024.12	78.1	20.2	22.3
Sidings and turn-outs	1,917.69	907.53	111.3	5.6	4.0
Electric power, total	34,059.60	121,901.53	55.5	99.0	97.0
Electric line transmission	34,144.19	21,899.06	55.4	98.9	97.0
Overhead trolley	32,591.71	121,290.09	52.7	94.5	94.3
Conduit trolley	322.70	296.06	21.3	0.9	1.2
Tiled rail	1,299.78	342.91	252.9	3.5	1.5
Gas-electric motors	22.50			0.1	
Storage batteries	3.00	2.47	21.5	(*)	(*)
Animal	136.11	236.10	47.5	0.4	1.1
On foot	61.71	249.60	474.4	0.2	1.1
Compressed air		6.06	100.0	(*)	(*)
Gasoline motors	40.99			0.1	
Steam	105.46	169.61	68.1	0.3	0.8
Track owned	27,480.65	110,023.65	44.4	79.9	64.3
Track leased	6,922.91	3,551.14	94.9	20.1	15.7
Operated under trackage rights	998.31	560.92	78.0	2.9	2.5
Constructed and opened for operation during the year	1,920.06	1,549.73	17.4	5.3	6.9
On private right of way owned by company	10,230.57	3,424.96	198.7	29.7	15.2
On private right of way not owned by company	741.27	377.11	96.6	2.2	1.7
Within city limits	17,467.21	13,208.24			
Outside city limits	13,208.35	6,855.58			
Equipped with cast-welded joints	(7)	1,642.68			7.3

* Exclusive of 12.48 miles of duplicated track.

* Exclusive of 6.24 miles of duplicated track.

* Less than one-tenth of 1 per cent.

* Decrease.

* Exclusive of the mileage of Connecticut and Massachusetts.

* Exclusive of the mileage of Massachusetts.

* Not reported.

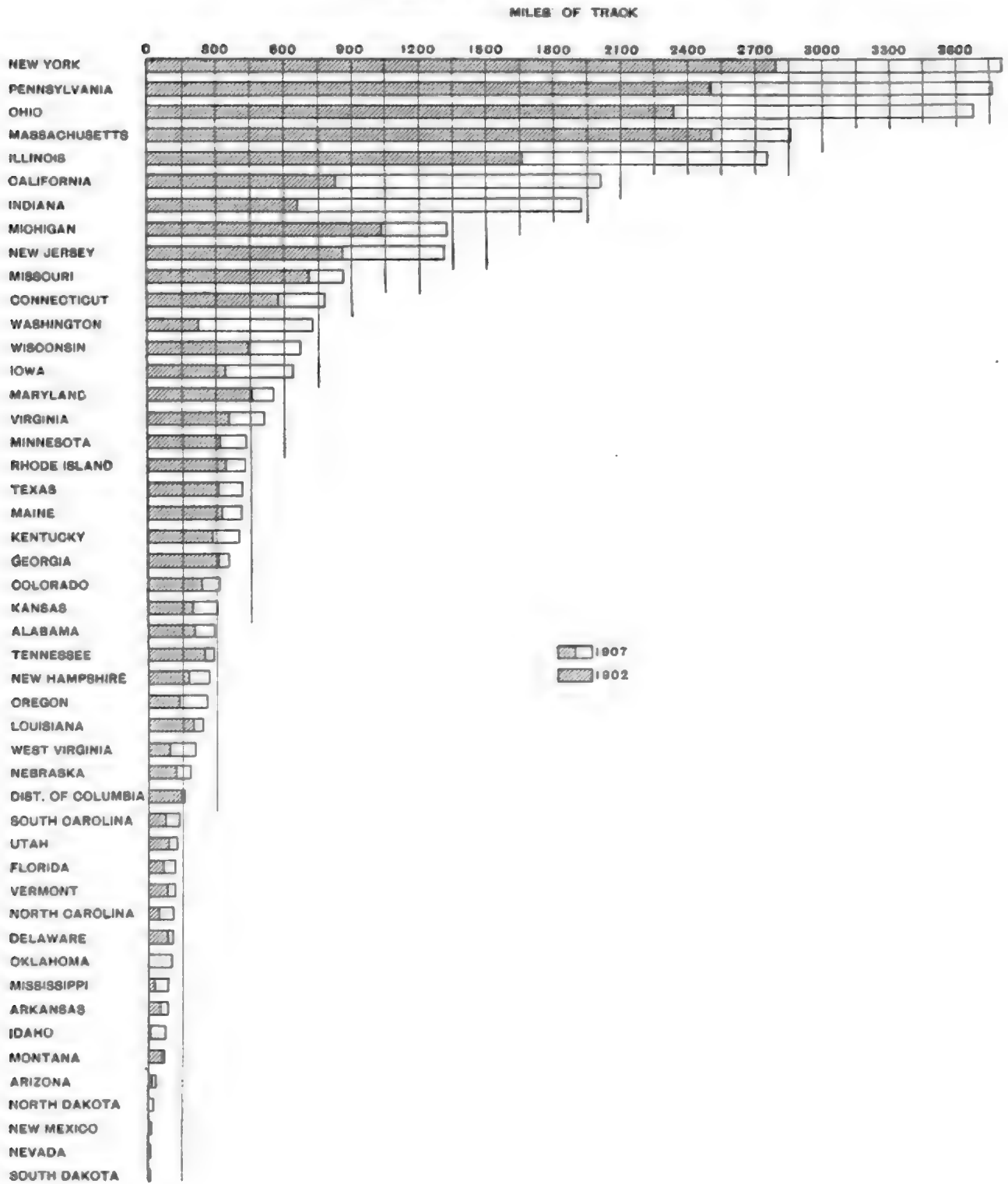
One pair of rails in any thoroughfare was counted as a single track and a second pair of rails running alongside of the first, thus allowing cars to pass in opposite directions at the same time, was classed as a second or double track. The length of the second track therefore represents the double trackage, except that third and fourth main track, in the few cases where it occurs, is included under second main track. The length of track that should be regarded as second track rather than as sidings or turn-outs, was left to the judgment of each company. The difference between the first main track and the second main track thus represents the amount of single-track line, which was 18,608.51 miles in 1907 and 11,621.22 miles in 1902. The increase in single-track line was 60.1 per cent, whereas the increase in double-track line was 38.1 per cent. The extension of interurban lines and of urban lines into suburban districts accounts for the greater percentage of increase in the single-track lines.

Track operated by electric power.—Of the total mileage, all but 1 per cent was operated by electric power in 1907. Track operated by power other than electric amounted in the aggregate to 343.87 miles in 1907 and 675.46 miles in 1902, a decrease of 331.59 miles. An interesting feature of nonelectric power is the appearance in 1907 of gasoline-motor cars which were used to the exclusion of all others by 5 companies on 40.99 miles of track. The location and mileage of these companies were as follows: 2 in Illinois, 34.49 miles; 1 in Kansas, 3 miles; 1 in North Carolina, 1.25 miles; and 1 in Texas, 2.25 miles. The lines were equipped with 13 gasoline-motor cars and 19 trailers. It should be explained, however, that the roads in Illinois, Kansas, and North Carolina were new roads that were to be electrified, while the 1 in Texas was connected with a summer resort and was operated for only a portion of the year.

The 22.50 miles of track operated with gas-electric motors in 1907 were reported by 1 company in Kansas, equipped with 3 motor cars and 6 trailers. Each motor car was equipped with gasoline engine, dynamo, storage battery of 112 cells, and 2 motors. The 2 companies that used storage batteries in 1902 on 2.47 miles of track were located, 1 in Chicago, Ill., and 1 in New York City. By 1907 the road of the latter company had been changed to a conduit electric road, while the company in Illinois had increased its track to 3 miles and was still using storage batteries to operate its cars. The use of compressed air, reported in 1902 as a motive power, was abandoned before 1907.

DIAGRAM 1.—MILES OF TRACK, BY STATES AND TERRITORIES: 1907 AND 1902.

[Based upon net trackage in each state.]



The overhead trolley, conduit trolley, and third rail are the only methods of electric contact that were reported, and they cover all electric-trackage systems in use in 1907, with the exception of those operated by gas-electric motors and storage batteries. The comparative statistics for the track operated by these different methods are shown in Table 24.

TABLE 24.—*Electric track—Number of companies and miles of track, by kind of system: 1907 and 1902.*

KIND OF SYSTEM.	NUMBER OF OPERATING COMPANIES REPORTING.		MILES OF TRACK.			
	1907	1902	1907	1902	Percent of total.	
					1907	1902
Total electric.....	904	747	34,059.69	21,901.53	100.0	100.0
Overhead trolley.....	895	739	32,501.71	21,290.09	95.4	97.2
Conduit trolley.....	10	11	322.70	266.06	0.9	1.2
Third rail.....	23	11	1,209.78	342.91	3.6	1.6
Gas-electric motors.....	1		2.50		0.1	
Storage batteries.....	1	2	3.00	2.47	(¹)	(²)

¹ Exclusive of 12.48 miles of duplicated track.
² Less than one-tenth of 1 per cent.

While the proportion of electric trackage operated by overhead trolley was not so large in 1907 as in 1902, the system was practically in universal use at both census periods.

Conduit trolley, the most expensive type of electric-traction construction, is in use only where municipal regulations prohibit the use of overhead trolley. The conduit-trolley trackage of the 11 companies in 1902 was distributed as follows: 178.89 miles in New York City, operated by 4 companies; 86.88 miles in the District of Columbia, operated by 6 companies (of which 1 was a Virginia company); and 0.29 mile in Bay City, Mich., operated by 1 company. The census of 1907 shows 226.56 miles of conduit trolley operated by 3 companies in the city of New York, and 96.14 miles operated by 7 companies in the District of Columbia, including 3.28 miles belonging to 2 companies operating chiefly in Virginia.

Although the third-rail system was in operation on more than three and one-half times as great a trackage in 1907 as in 1902, its use is still limited largely to elevated structures and tracks on private right of way, and consequently the mileage for this system is small. But the rapid increase in "third-rail" mileage between 1902 and 1907 gives special interest to the detailed comparative statistics, as presented in Table 25.

Though there were 23 companies using this form of line transmission in 1907, only 4—the Northwestern Elevated, and Metropolitan West Side Elevated, in Illinois; the Interborough Rapid Transit, N. Y.; and the Wilkes-Barre and Hazleton, Pa.—used it on their entire trackage. In 1902, also, only 4 of the 11 companies then using the "third rail" reported its use to

the exclusion of all other kinds, these companies being the New York, New Haven and Hartford Railroad (Berlin system) in Connecticut, and the Northwestern Elevated, South Side Elevated, and Metropolitan West Side Elevated, in Illinois.

TABLE 25.—*Third-rail track, by states and companies: 1907 and 1902.*

STATE AND COMPANY.	MILES.	
	1907	1902
United States.....	1,209.78	342.91
California, total.....	114.70	
Northern Electric Ry.....	102.74	
Central California Traction.....	11.96	
Connecticut, total.....		25.89
New York, New Haven and Hartford R. R. (Berlin system, steam road in 1907).....		25.89
Illinois, total.....	213.44	108.70
Northwestern Elevated R. R.....	29.57	30.37
South Side Elevated R. R.....	37.27	21.08
Metropolitan West Side Elevated Ry.....	44.92	39.34
Chicago and Oak Park Elevated R. R. (Lake Street Elevated in 1902).....	16.18	17.97
Aurora, Elgin and Chicago R. R.....	85.50	
Massachusetts, total.....	19.19	41.45
Boston Elevated Ry.....	19.19	16.02
New York, New Haven and Hartford R. R. (Nantasket division).....		25.43
Michigan, total.....	81.13	36.63
Grand Rapids, Grand Haven and Muskegon Ry.....	37.13	36.63
Michigan United Rys.....	44.00	
New Jersey, total.....	132.45	
Atlantic City and Shore R. R.....	1.50	
West Jersey and Seashore R. R. (Camden and Atlantic City branch).....	130.95	
New York, total.....	415.80	130.16
Albany and Hudson R. R.....	37.25	39.78
Kosseville, Ausable Chautau and Lake Champlain R. R.....	5.22	
Interborough Rapid Transit (Manhattan Ry., elevated, in 1902).....	190.53	40.00
Brooklyn Union Elevated R. R. (Brooklyn Rapid Transit in 1902).....	76.04	50.40
Oneida Ry.....	106.82	
Ohio, total.....	71.10	
Seloto Valley Traction.....	71.10	
Pennsylvania, total.....	111.50	
Wilkes-Barre and Hazleton Ry.....	29.86	
Philadelphia Rapid Transit.....	12.45	
Philadelphia and Western Ry.....	22.89	
Lackawanna and Wyoming Valley R. R.....	40.30	
Washington, total.....	50.41	
Puget Sound Electric Ry.....	50.41	

Surface, elevated, and subway trackage.—Of the 34,403.56 miles of track reported for 1907, 33,966.40 miles, or 98.7 per cent, was surface trackage; 350.05 miles, or 1 per cent, elevated; and 87.11 miles, or three-tenths of 1 per cent, in subways and tunnels. At the census of 1902 the schedule of inquiry did not call for the subdivision of the trackage into the above groups, and the comparisons with that census are therefore necessarily limited. While it is not possible to determine the underground mileage in 1902, as only the length of tunnels was reported, it is possible to determine the approximate length of track carried on elevated structures. The following statement shows

the amount of such track in the various states in 1907 and in 1902:

Elevated track: 1907 and 1902.

STATE.	MILES.		Per cent of increase.
	1907	1902	
Total..	330.05	308.94	13.3
Illinois..	125.77	107.96	16.5
Maryland..	1.40	..	..
Massachusetts..	16.70	16.02	4.2
Missouri..	3.18	..	..
New Jersey..	7.29	..	..
New York..	188.07	184.96	1.7
Pennsylvania..	7.07	..	..

Elevated track in 1907 was reported by 12 companies, of which only 2 operated elevated roads exclusively, 6 operated elevated and surface tracks, 1 operated elevated and subway tracks, and 3 operated elevated, surface, and subway tracks.

In 1907 the 28.98 miles of subways and tunnels were laid with 87.11 miles of track.

Track in subways and tunnels: 1907.

	Miles.
Total..	87.11
Illinois..	..
Massachusetts..	7.79
Missouri..	..
New York..	72.78
Pennsylvania..	5.62

The trackage in subways and tunnels in 1907 was operated by 9 companies. The New York City Subway, with 72.48 miles of track, though operated as a distinct property, was reported to the Census Bureau in connection with elevated lines. The remainder of the subway trackage was operated by 3 companies that also operated surface and elevated tracks and 5 companies that operated small amounts of subway track in connection with their regular surface tracks.

Ownership of track.—The track statistics are compiled from the reports of the operating companies. The miles of track reported as owned by operating companies increased 8,454.80 miles, or 44.4 per cent, from 1902 to 1907. The trackage of lessor companies, shown separately in Table 183, is included as leased track in the total for operating companies. The leased trackage, shown in Table 184, includes not only the track of lessor companies, but all track that was operated under lease from steam railroads, bridge companies, etc., and it may or may not represent the entire trackage of either the operating or the lessor company. In obtaining the total miles of track for all companies, the trackage operated under trackage rights is included only in the report of the owning company, thus avoiding any duplication.

There has been a large increase in the leased trackage, which constituted 20.1 per cent of the miles of track

operated in 1907, as against 15.7 per cent in 1902. The miles of track operated under lease almost doubled during the census period, while the increase in total trackage was but a little over one-half.

The average length per lessor company of leased track, exclusive of track leased from steam railroads, etc., shows an increase from 20.58 miles in 1902 to 22.82 miles in 1907; while the average length of owned track per operating company increased from 23.29 miles to 29.08 miles, and the average length of all track per operating company, from 27.63 miles to 36.41 miles. The statistics for this subdivision of trackage are given in Table 26. In this table the states in which there was no leased track are grouped as "all other states" under the respective geographic divisions.

In 1902 the practice of operating trackage under a lease was confined to 14 states, and all but a few miles of the leased trackage was in 9 states. For 1907, however, leased trackage was reported in 25 states. The table shows a considerable shifting of owned and leased trackage for the two census years. In New Hampshire one-third of the trackage was under lease in 1902, while in 1907 the entire trackage was owned by operating companies. The change was caused by the failure of the operating company to fulfill its lease obligations, the operation of the properties reverting to the lessor companies. In Missouri almost one-half of the trackage was under lease in 1902 and but one-half of 1 per cent in 1907. Here the change was occasioned by the disappearance of the lessee and operating company of the St. Louis railways between 1902 and 1907. On the other hand, lessees operated nearly two-thirds of the track in Rhode Island, one-half of that in Louisiana, and four-tenths of that in Indiana in 1907, while in 1902 all the track in these states was reported as operated by the owners.

The bringing of several properties under one control or operating head, for economies of operating and for monopolistic purposes, is the strongest factor in the creation of lessee and lessor companies. But with the advent of the holding company in recent years these purposes are gained without any change being reflected in the statistics of track ownership. Thus, though several properties in Illinois, for example, were brought under one operating management and formed into one large continuous system, they were operated as separate units and reported to the Census Bureau as individual properties. State laws are also a factor in influencing the form of ownership and division of the properties. At the census of 1902 several properties in New York were reported in combination, which by 1907 had separated, in compliance with a court decision, and were reported as separate companies. The large proportion of leased track shown for Pennsylvania at both censuses is due largely to state laws which make corporate combination difficult.

TRACK AND ROLLING STOCK.

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TABLE 26.—TRACK OWNED AND LEASED, RESPECTIVELY, BY OPERATING COMPANIES, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	MILES.							
	Total.		Owned.		Leased.		Per cent of total.	
							Owued.	Leased.
	1907	1902	1907	1902	1907	1902	1907	1902
United States.....	34,433.56	22,578.99	27,480.65	19,025.85	6,952.91	3,553.14	79.9	84.3
North Atlantic division.....	13,713.37	10,164.89	9,461.77	7,597.72	4,251.60	2,567.17	69.0	74.7
Maine.....	424.06	331.55	424.06	328.08	.....	3.47	100.0	99.0
New Hampshire.....	247.10	167.65	247.10	111.43	.....	56.22	100.0	66.5
Massachusetts.....	2,896.85	2,525.65	2,339.88	2,040.41	556.97	485.24	81.1	80.8
Rhode Island.....	419.92	328.90	146.97	328.90	272.95	.....	35.0	100.0
Connecticut.....	781.15	578.49	563.34	543.66	217.81	35.43	72.1	93.9
New York.....	3,884.74	2,809.91	2,877.14	2,287.25	1,007.60	522.66	74.1	81.4
New Jersey.....	1,324.12	841.28	926.99	623.37	397.13	217.91	70.0	72.4
Pennsylvania.....	3,021.12	2,480.91	1,811.98	1,254.67	1,209.14	1,226.24	59.0	50.6
All other North Atlantic states ¹	124.31	80.55	124.31	80.55	.....	.....	100.0	100.0
South Atlantic division.....	2,300.73	1,670.15	2,196.31	1,660.47	114.42	9.68	95.0	99.4
Delaware.....	95.93	85.61	84.32	85.61	11.61	.....	87.9	100.0
Maryland.....	536.18	437.84	525.76	431.92	10.42	5.92	98.0	98.6
Virginia.....	515.54	359.30	456.30	355.79	59.24	3.51	88.5	99.0
West Virginia.....	268.41	140.00	253.22	140.00	15.19	.....	93.8	100.0
North Carolina.....	106.04	46.32	85.98	46.67	20.06	.25	80.4	98.5
Florida.....	118.26	61.75	117.26	61.75	1.00	.....	99.2	100.0
All other South Atlantic states ²	661.47	539.53	661.47	539.53	.....	.....	100.0	100.0
North Central division.....	12,850.53	7,815.32	10,455.55	6,842.58	2,394.98	972.74	81.4	87.6
Ohio.....	3,767.10	2,333.43	2,718.08	2,101.21	1,049.02	232.22	72.2	89.3
Indiana.....	1,932.93	646.66	1,139.08	646.66	793.85	.....	60.0	100.0
Illinois.....	2,776.46	1,635.20	2,302.95	1,275.57	473.51	359.63	82.9	78.0
Iowa.....	639.84	378.25	578.62	378.25	61.22	.....	90.4	100.0
Missouri.....	921.67	758.38	917.07	397.19	1.60	360.89	99.5	52.4
Nebraska.....	218.73	113.66	196.35	113.66	32.38	.....	85.2	100.0
Kansas.....	249.88	150.26	248.88	150.26	1.00	.....	99.6	100.0
All other North Central states ³	2,343.92	1,779.48	2,343.92	1,779.48	.....	.....	100.0	100.0
South Central division.....	1,905.91	1,322.45	1,782.36	1,322.45	123.55	.....	93.5	100.0
Kentucky.....	390.13	283.95	385.36	283.95	3.77	.....	99.0	100.0
Alabama.....	291.66	204.72	291.16	204.72	.50	.....	99.8	100.0
Louisiana.....	234.52	198.52	115.24	198.52	119.28	.....	50.0	100.0
All other South Central states ⁴	980.60	635.26	986.60	635.26	.....	.....	100.0	100.0
Western division.....	3,633.02	1,604.18	3,594.66	1,602.63	38.36	1.55	98.9	99.9
Colorado.....	317.37	234.53	317.37	232.09	.....	1.55	100.0	99.3
Utah.....	122.54	89.04	114.79	89.04	7.75	.....	93.7	100.0
Washington.....	764.73	228.93	744.80	228.93	19.93	.....	97.4	100.0
California.....	2,013.49	829.10	2,002.81	829.10	10.68	.....	99.5	100.0
All other Western states and territories ⁵	414.80	222.58	414.80	222.58	.....	.....	100.0	100.0

¹ Exclusive of 12.48 miles of duplicated track.

² Includes Vermont.

³ Includes states as follows: District of Columbia, Georgia, South Carolina.

⁴ Includes states as follows: 1907—Michigan, Minnesota, North Dakota, South Dakota, Wisconsin; 1902—Michigan, Minnesota, South Dakota, Wisconsin.

⁵ Includes states as follows: 1907—Arkansas, Mississippi, Oklahoma, Tennessee, Texas; 1902—Arkansas, Mississippi, Tennessee, Texas.

⁶ Includes states and territories as follows: 1907—Arizona, Idaho, Montana, Nevada, New Mexico, Oregon; 1902—Arizona, Idaho, Montana, New Mexico, Oregon.

Trackage rights.—The track operated under trackage rights, as it is presented in the census tables, should always be regarded as a duplication of the total owned and leased track, in arriving at the total miles of track for all companies. In determining the total track operated for each individual company, however, it is necessary to include the track operated under trackage rights as well as the track owned and leased by the company; otherwise the traffic deductions based upon trackage of the individual companies would not be correct. At the census of 1902 the total miles of track reported as operated under trackage rights was 560.92, which increased to 998.31 miles in 1907, the rate of increase being 78 per cent. Though the proportion underwent a great increase, it is still small as compared with the aggregate amount of owned and leased trackage.

In localities where one company enjoys an exclusive franchise, it is impossible for another to gain entrance,

except by some form of trackage-rights agreement. Interurban lines more often gain their terminal facilities by operating over the tracks of the urban companies than by constructing and owning their own lines within the urban centers. There are several different methods of agreement between companies, but probably the two most common are trackage rights and contract arrangements. In the first case the company that owns the cars counts the car miles and the fare passengers and on this basis pays at a stipulated rate to the company owning the tracks. In the second case the company owning the tracks takes the cars of the other company, at least nominally, and operates them; records the car miles and fare passengers; and collects all fares and pays the expenses during the time the cars are operated for the other company, the net receipts being divided between the two companies upon an agreed basis.

Companies operating track under trackage rights

report to the census the length of track so operated, and show, in the operating-expense account, the amount paid for the use of such track, while with the contract arrangement no track is shown as operated under trackage rights, and no payment is reported for the use of tracks. It is not unusual for through cars of interurban lines to make a considerable mileage, under the contract arrangement, on tracks of other companies. In designating the cities in which the companies operated, it is sometimes necessary for the census to treat a company as operating in cities for which no track appeared in that company's report. Where the discrepancies in the length of track owned and in the number of cities in which the through cars were operated were great, a footnote of explanation was appended to the column presenting the figures for operated track of Table 183, the footnote reading as follows: "Cars operated by another company at terminus (or termini) of road owned."

Interurban roads entering Indianapolis, Ind., and Toledo, Ohio, have trackage-rights agreements with the local railway companies for track and terminal facilities in the cities, and their reports, as indicated above, show the amount of track operated under trackage rights and the amount paid for its use. In Cleveland, Ohio, Washington, D. C., Providence, R. I., and Manchester, N. H., cars were operated by some companies over the tracks of other companies under the contract arrangement, and no trackage-rights track or expenses for use of track were reported by the companies owning the cars. There are probably other cases of this sort that were not disclosed by the census reports.

Track constructed and opened for operation during the year.—The increase in trackage is due, of course, to the creation of new properties or the extension of existing systems. The census did not attempt to ascertain what proportion of the increase in mileage was due to each of these causes, or to apportion the increase between the censuses by years. During the year 1907, however, the new construction amounted to 1,820.06 miles, and during 1902 to 1,549.73 miles.¹ It should be understood that these figures do not represent the mileage constructed entirely within the census years, but rather the new mileage opened for operation during these periods; a large proportion of such mileage, however, was constructed entirely within the census years. The statistics for such mileage, with the percentages of increase, are shown in Table 27.

The states showing the greatest amount of new track in 1907 were California, Illinois, New York, Indiana, Washington, and Pennsylvania, in the order named; while in 1902 the ranking states were Ohio, Pennsylvania, Massachusetts, New York, California, and Illinois. Of these ranking states, those showing

the highest proportion of new track in 1907 were Washington, with 21.8 per cent, and California, with 10.2 per cent, and in 1902, Ohio, with 13.8 per cent, and California, with 10.1 per cent.

TABLE 27.—Track constructed and opened for operation during the year, by states and geographic divisions: 1907 and 1902.

STATE OR TERRITORY.	MILES.		PER CENT OF TOTAL TRACAGE.	
	1907	1902	1907	1902
United States.....	1,820.06	1,549.73	5.3	6.9
North Atlantic division.....	430.26	660.39	3.3	6.5
Maine.....	3.58	33.60	0.8	10.1
New Hampshire.....	24.43	5.60	9.9	2.3
Vermont.....	11.26	10.96	9.1	13.6
Massachusetts.....	27.59	162.31	1.0	6.4
Rhode Island.....	5.75	38.07	1.4	11.6
Connecticut.....	24.62	16.75	3.1	2.9
New York.....	184.12	136.87	4.7	4.9
New Jersey.....	31.78	40.41	2.4	4.7
Pennsylvania.....	140.24	215.82	4.0	8.7
South Atlantic division.....	106.10	92.90	4.6	5.6
Delaware.....	.85	21.25	0.0	24.8
Maryland.....	12.74	8.24	2.4	1.9
District of Columbia.....		5.68		3.5
Virginia.....	34.23	17.16	6.6	4.8
West Virginia.....	7.75	24.75	2.9	17.7
North Carolina.....	12.15	1.87	11.4	4.0
South Carolina.....	12.20	6.50	9.3	8.4
Georgia.....	10.94	6.29	3.1	2.1
Florida.....	15.27	1.25	12.9	2.0
North Central division.....	712.79	577.73	5.5	7.4
Ohio.....	90.65	324.70	2.6	13.8
Indiana.....	172.88	67.48	8.9	10.5
Illinois.....	196.05	82.74	7.1	5.1
Michigan.....	10.35	10.45	0.8	1.6
Wisconsin.....	85.85	17.32	14.5	4.2
Minnesota.....	7.83		17.1	
Iowa.....	59.07	47.32	9.4	12.5
Missouri.....	11.97	17.73	1.3	2.3
South Dakota.....	5.00		100.0	
Nebraska.....	27.43	3.00	12.7	2.6
Kansas.....	35.20	.29	14.1	0.4
South Central division.....	110.22	106.38	6.3	8.0
Kentucky.....	29.48	23.00	7.7	8.1
Tennessee.....	12.25	13.07	4.1	5.1
Alabama.....	11.25	4.50	3.9	2.2
Mississippi.....	.05	4.52	0.1	17.9
Louisiana.....	8.93	4.07	3.7	2.1
Arkansas.....	3.50	2.73	4.0	5.2
Oklahoma.....	26.53		28.4	
Texas.....	24.73	54.45	6.0	18.0
Western division.....	422.70	112.35	11.6	7.0
Montana.....	4.00	1.10	6.9	1.7
Colorado.....	19.16	7.97	6.0	3.4
New Mexico.....	1.50		14.9	
Utah.....	5.89	1.00	4.8	1.1
Nevada.....	.20		2.8	
Washington.....	167.08	12.04	21.8	5.3
Oregon.....	18.28	6.65	7.2	4.9
California.....	205.77	83.60	10.2	10.1

Of the states that showed relatively large amounts of new track in 1902, the largest percentage of increase in new track was 154.7 for Indiana, followed by California, with 146.2 per cent, and Illinois, with 136.9 per cent. In 1902 the new trackage constituted the largest per cent ratio (8 per cent) to the total trackage of the divisions in the South Central states, but by 1907 the greatest proportionate development for the year was in the Western states, the new trackage in those states forming 11.6 per cent of their total trackage.

Track on private right of way.—By far the larger proportion of street and electric track is on streets or

¹ For statistics of railways under construction in 1907, see p. 27.

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public thoroughfares, but the interurban companies frequently own their right of way or have obtained the privilege of operating track on private ways, and hence in districts where interurban lines have been extensively

developed, a considerable portion of the track is on private right of way. Comparative statistics for track-age according to the ownership of the right of way are given in Table 28.

TABLE 28.—TRACK ON PUBLIC THOROUGHFARES AND PRIVATE RIGHT OF WAY, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	MILES.													
	On private right of way.													
	Per cent of total.													
	On public thoroughfares.													
	On private right of way.													
Total.	Total.		On public thoroughfares.		Total.		Owned by company.		Not owned by company.		Per cent of total.			
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
United States.....	34,401.56	122,576.99	23,431.72	118,774.92	10,971.84	3,802.07	10,230.57	3,424.96	741.27	377.11	68.1	83.2	31.9	16.8
North Atlantic division.....	13,713.37	10,164.89	10,396.23	8,935.08	3,317.14	1,300.94	2,848.20	1,125.10	468.94	164.74	73.8	87.1	24.2	12.9
Maine.....	424.06	331.55	336.27	301.27	67.79	30.28	66.48	29.61	1.31	.67	81.0	90.9	16.0	9.1
New Hampshire.....	247.10	167.05	196.34	163.10	50.76	4.55	50.76	4.49	.....	.07	79.5	97.3	20.5	2.7
Vermont.....	124.31	80.55	80.67	72.76	37.64	7.79	37.28	7.42	.....	.37	69.7	90.3	30.3	9.7
Massachusetts.....	2,886.85	2,525.05	2,622.61	2,347.90	264.24	177.55	245.11	126.09	19.13	51.66	90.8	93.0	9.2	7.0
Rhode Island.....	419.92	328.90	312.67	259.01	107.25	72.89	104.91	72.59	2.44	.30	74.5	77.8	25.5	22.2
Connecticut.....	781.15	578.49	737.50	543.63	43.65	72.56	38.65	72.56	5.09	.....	94.4	87.5	5.6	12.5
New York.....	3,894.74	2,409.01	2,693.46	2,402.62	1,291.28	407.27	975.16	373.05	226.12	34.21	69.1	85.6	30.9	14.5
New Jersey.....	1,324.12	861.28	921.33	794.15	402.77	98.13	402.31	97.04	.....	1.09	69.6	88.6	30.4	11.4
Pennsylvania.....	3,621.12	2,470.91	2,470.91	2,042.28	1,141.76	439.63	927.64	342.26	214.12	90.37	68.6	82.3	31.5	17.7
South Atlantic division.....	2,300.73	1,670.15	1,544.38	1,221.12	786.35	449.03	714.78	578.78	41.57	70.25	67.1	73.1	32.9	26.9
Delaware.....	95.93	85.61	71.19	58.31	24.74	27.39	20.74	24.17	4.00	3.13	74.2	68.1	25.8	31.9
Maryland.....	536.18	437.84	306.25	223.02	229.93	214.82	228.18	163.35	1.75	51.47	57.1	50.9	42.9	49.1
District of Columbia.....	176.03	161.67	138.34	125.16	37.69	36.81	37.69	36.81	.....	.....	78.6	77.3	21.4	22.7
Virginia.....	315.54	259.30	286.85	255.72	228.69	83.58	218.71	80.83	9.98	2.73	55.6	76.7	44.4	23.3
West Virginia.....	266.41	140.60	223.26	119.79	43.15	23.39	40.15	22.29	3.00	1.10	83.8	83.4	16.2	16.6
North Carolina.....	106.94	46.42	79.93	35.49	27.61	10.73	23.76	4.74	3.25	5.99	74.7	76.8	25.3	23.2
South Carolina.....	131.26	76.98	73.06	38.85	18.13	18.13	56.37	13.70	1.63	2.43	55.7	76.4	44.3	23.6
Georgia.....	354.19	300.28	279.40	266.92	74.78	33.90	74.78	30.64	1.00	3.65	78.9	88.7	21.1	11.3
Florida.....	118.20	61.75	86.10	61.38	32.16	.....	15.20	.....	16.06	.....	72.8	90.4	27.2	0.6
North Central division.....	12,850.53	7,815.32	7,567.96	6,158.72	5,282.57	1,656.60	5,150.34	1,563.54	132.23	93.06	58.9	78.8	41.1	21.2
Ohio.....	3,767.10	2,333.43	2,109.88	1,716.96	1,637.22	636.47	1,617.61	632.12	39.61	4.35	58.0	73.0	44.0	27.0
Indiana.....	1,932.93	646.66	636.90	468.74	1,265.94	177.92	1,276.46	150.63	19.49	27.29	73.0	72.5	67.0	27.3
Illinois.....	2,776.46	1,655.39	1,727.16	1,420.83	1,049.30	214.87	1,039.49	191.29	9.81	23.08	62.2	80.9	37.8	13.1
Michigan.....	1,275.63	1,022.81	831.86	700.53	443.17	321.88	423.73	301.61	19.44	20.27	65.2	68.5	34.8	31.5
Wisconsin.....	690.15	416.50	415.95	347.95	174.70	68.55	174.43	57.16	.....	11.39	70.4	83.5	29.6	16.5
Minnesota.....	457.15	338.17	401.21	324.59	155.94	13.58	155.94	13.11	.....	.47	87.8	96.0	12.2	4.0
Iowa.....	639.84	378.25	331.32	296.78	308.52	79.47	271.75	77.40	36.77	2.07	51.8	79.0	48.2	21.0
Missouri.....	921.67	758.38	744.63	629.51	177.04	128.87	173.31	125.56	3.73	3.31	80.8	83.0	19.2	17.0
North Dakota.....	16.00	.....	16.00	.....	.....	.....	.....	.....	.....	.....	100.0	.....	.....	.....
South Dakota.....	5.00	2.00	5.00	2.00	.....	.....	.....	.....	.....	.....	100.0	100.0	.....	.....
Nebraska.....	218.73	113.66	195.66	111.33	23.07	2.33	21.58	2.33	1.49	.....	69.5	68.0	10.5	2.0
Kansas.....	249.88	150.26	152.21	137.10	97.67	13.16	90.02	12.33	1.65	.83	69.9	91.2	39.1	8.8
South Central division.....	1,905.91	1,322.45	1,560.90	1,142.74	345.01	179.71	333.11	169.32	11.00	10.39	81.9	86.4	18.1	13.6
Kentucky.....	389.13	261.95	269.64	231.33	119.49	30.42	119.49	30.17	.....	.25	60.3	80.3	30.7	10.7
Tennessee.....	297.50	254.20	273.80	235.04	23.70	20.13	23.30	13.13	.....	6.03	92.0	92.5	8.0	7.5
Alabama.....	291.08	234.72	194.56	134.39	97.10	30.33	96.10	70.08	1.00	.25	68.7	65.6	33.3	34.4
Mississippi.....	86.40	25.30	79.96	24.56	6.44	.....	5.68	.....	.....	1.0	92.5	87.1	7.5	2.9
Louisiana.....	239.52	198.52	226.64	193.96	11.88	4.56	11.88	4.56	.....	.....	95.9	87.7	5.0	2.3
Arkansas.....	87.39	52.49	86.67	51.39	7.72	1.10	.....	.....	.....	.....	90.2	87.9	0.8	2.1
Oklahoma.....	100.44	.....	68.76	.....	20.68	.....	21.63	.....	9.05	.....	100.5	.....	.....	.....
Texas.....	414.87	303.27	359.87	240.87	55.00	53.40	54.60	50.24	.....	3.16	80.7	82.4	13.3	17.6
Western division.....	3,633.02	1,604.18	2,362.25	1,397.29	1,270.77	306.80	1,184.14	188.22	86.63	18.67	65.0	87.1	35.0	12.9
Montana.....	69.24	63.21	33.86	34.79	15.38	8.42	10.62	7.42	4.76	1.00	77.8	96.7	22.2	13.3
Idaho.....	44.24	3.50	14.44	3.50	29.80	.....	.....	.....	29.50	.....	32.6	100.0	67.4	.....
Colorado.....	317.37	234.53	261.18	223.66	56.19	10.87	51.93	10.87	4.26	.....	82.3	95.4	17.7	4.6
New Mexico.....	10.10	2.10	9.85	2.10	.....	.....	.....	.....	.....	.....	97.5	100.0	2.5	.....
Arizona.....	30.73	17.10	22.73	14.10	8.00	3.00	8.00	3.00	.....	.....	74.0	82.5	26.0	17.5
Utah.....	122.54	89.04	119.74	88.66	2.80	.....	2.80	.....	.....	.....	97.7	99.6	2.3	0.4
Nevada.....	7.15	.....	6.40	.....	.....	.....	.....	.....	.....	.....	90.8	.....	9.2	.....
Washington.....	764.73	228.93	410.82	141.33	353.91	87.60	339.53	71.91	14.38	15.69	53.7	61.7	66.3	38.3
Oregon.....	253.41	136.67	166.47	116.51	86.94	20.16	86.94	20.16	.....	.....	65.7	85.2	34.3	14.8
California.....	2,013.49	829.10	1,290.65	752.64	716.84	76.46	664.02	74.68	32.62	1.98	64.4	90.8	35.6	9.2

¹ Exclusive of 12.46 miles of duplicated track.

The large increase in track on private right of way is a marked feature of electric-railway development. Of the total increase in track during the five-year period, which amounted to 11,826.57 miles, 7,169.77 miles, or 60.6 per cent, was on private right of way, and 4,656.80 miles, or 39.4 per cent, on public thoroughfares. The new track on private right of way shows an increase of 188.6 per cent over that of 1902, while that on public thoroughfares shows an increase of but 24.8 per cent.

With the exception of 7 states and the District of Columbia every state and territory had a larger percentage of increase for the miles of track on private right of way than for that on public thoroughfares, and 2 states that had no track on private right of way in 1902 reported track of that character in 1907. North and South Dakota were the only states with no track on private right of way. The greatest actual increase in private-right-of-way track was in Indiana,

where 1,118.02 miles, or over two-thirds of the total trackage of the state, was of this character. Trackage on private right of way also exceeded that on public thoroughfares in Idaho. Although in no other states did the private ownership of right of way predominate, the percentages of track on private right of way were large for Iowa, 48.2 per cent; Washington, 46.3 per cent; Virginia, 44.4 per cent; South Carolina, 44.3 per cent; Ohio, 44 per cent; Maryland, 42.9 per cent; Kansas, 39.1 per cent; Illinois, 37.8 per cent; California, 35.6 per cent; and Michigan, 34.8 per cent.

The statistics by geographic divisions show large increases in track on private right of way for the Western division, 514.2 per cent; the North Central division, 218.9 per cent; and the North Atlantic division, 153.2 per cent. In 1902 the North Atlantic and Western divisions had the largest percentage of trackage on public thoroughfares, and the South Atlantic states the largest percentage of tracks on private right of way; in 1907 the South Central division had the largest percentage of tracks on public thoroughfares, while the North Central had the most trackage and the largest percentage of trackage on private right of way.

Track within and outside city limits.—The amount of track reported as within city limits depended largely upon the judgment of the persons who prepared the census reports, as the inquiry calling for the miles of track within city or municipal limits contained the instruction that such track should include the track in any city, town, or village "not rural in character." The division of track thus obtained would be more correctly termed "urban" and "rural" than "within" and "outside" city limits, and Table 184, which shows the trackage for each company, may be accepted as showing approximately the track laid in thickly populated urban districts as against the rural trackage.

There were several companies in Connecticut and Massachusetts whose officials did not attempt to make this classification of urban and rural trackage, claiming that it was not applicable to localities where city and township boundaries are coextensive. The totals for track within and outside of city limits, respectively, for 1907 are therefore less than the total trackage by the amount of track for Connecticut and Massachusetts, while for 1902 the totals are less by the amount of track for Massachusetts. Exclusive of the trackage for Connecticut and Massachusetts, which is largely urban, the total trackage for the country is divided into urban and rural, as follows:

	1907	1902	Per cent of increase.
Miles of track, exclusive of Connecticut and Massachusetts	30,735.56	19,472.45	57.8
Within city limits	17,467.21	12,956.10	34.8
Outside city limits	13,268.35	6,516.35	103.6

The rate of increase for rural trackage was almost three times as great as that for urban. In other words, the rural trackage furnished 6,751.60 miles and the urban trackage 4,511.11 miles of the total increase of 11,262.71 miles shown for the United States, exclusive of Connecticut and Massachusetts.

Rails.—The information concerning rails shows the maximum and minimum weight per yard of steel rails and the style of rail used. There is no uniformity in either the weight or the style of rails, but a considerable increase in the general use of heavier rails is indicated. In preparing the table showing the number of companies using rails of specified weights—maximum and minimum—in 1907 and 1902 the companies reporting rails other than those specified were included in the number for the nearest weight group.

TABLE 29.—Companies, classified according to maximum and minimum weight, respectively, of rails used: 1907 and 1902.

WEIGHT OF RAILS PER YARD.	OPERATING COMPANIES REPORTING SPECIFIED WEIGHT OF RAILS AS MAXIMUM AND A MINIMUM.			
	1907		1902	
	Maximum weight.	Minimum weight.	Maximum weight.	Minimum weight.
Total.....	944	944	814	814
100 pounds or over	90	1	63	2
95 pounds	50	3	39	2
90 pounds	114	14	117	6
85 pounds	29	6	29	2
80 pounds	78	23	52	8
75 pounds	52	17	28	5
70 pounds	229	114	119	50
65 pounds	27	29	33	37
60 pounds	167	262	135	179
55 pounds	23	118	57	89
50 pounds	15	68	28	91
45 pounds	15	86	26	63
40 pounds	25	95	37	96
35 pounds	8	51	12	70
30 pounds	8	38	13	53
25 pounds or under	8	19	26	41

The heaviest rail in use in 1902, reported by the Union Traction Company of Philadelphia, weighed 135 pounds to the yard. In 1907 rails of 141 pounds to the yard were in use by 6 companies, located in California, Missouri, New Jersey, New York, and Pennsylvania. The lightest rails reported as "Maximum weight" were used on trackage operated by animal power and on some cable (inclined-plane) trackage. Naturally the heavier rails reported by a company are in use on its main line and the lighter rails on spurs, turn-outs, and yard and barn trackage.

In 1907, 27.5 per cent of the companies reporting weight of rails used rails with a maximum weight of 90 pounds and over, and 61.7 per cent used rails with a maximum weight ranging from 60 to 90 pounds; in 1902 the corresponding percentages were 26.9 and 48.6.

The 63 companies shown in Table 29 as reporting rails with a maximum weight of 100 pounds or over in 1902 had 6,791.77 miles of track, or 30.1 per cent of the total miles of track reported at that census. The 90 companies reporting such rails in 1907 had

11,640.88 miles of track, or 33.8 per cent of the total mileage. There was an increase of 42.9 per cent in the number of roads using these heavy rails, and an increase of 71.4 per cent in the trackage of the companies using the same in whole or in part.

In 1902, 2 companies—the Central Crosstown Railroad and the Kingsbridge Railway companies of New York City—with 14.32 miles of track, reported that their entire trackage was equipped with rails weighing 100 pounds or over; in 1907 only 1 company—the New York City Interborough Railway Company, with 8.24 miles of track—made such a report.

The following table gives the number of companies using the principal styles of rails in 1907 and 1902, respectively:

TABLE 30.—Companies, classified according to style of rails used: 1907 and 1902.

STYLE OF RAILS.	OPERATING COMPANIES REPORTING SPECIFIED STYLE OF RAIL.					
	1907			1902		
	Total.	Exclusively.	In part.	Total.	Exclusively.	In part.
T.....	900	505	395	755	397	358
Girder.....	387	30	357	413	36	377
Groove full and half.....	117	12	105	71	7	64
Flat.....	11		11	24	3	21
Trihby.....	11		11	3		3
Box.....				1		1

A very large majority of the companies have trackage equipped with rails of either the T or the girder type. In 1902, 364 of the 388 roads that used T rails in part reported T and girder rails, and of the 814 roads reporting upon rails, all but 10 used either T or girder rails in whole or in part. In 1907 T or girder rails were reported by all but 12 of the 944 companies reporting upon rails. T-rail construction is in some cases used on paved streets by paving up level with the top of the rail, and leaving a groove in the pavement along the inner edge.

Cross-ties.—The schedule of inquiry for electric railways for the census of 1907 contained an inquiry relating to the number, kind, and average cost of cross-ties purchased during 1907. This inquiry comprised a part of the annual investigation relating to the consumption of forest products made by the Census Bureau. The results are summarized in Table 31.

TABLE 31.—Wooden cross-ties purchased—Number and cost, by class and kind of wood: 1907.

KIND OF WOOD.	CLASS.					
	Hewed.			Sawn.		
	Number.	Cost.	Average cost per tie.	Number.	Cost.	Average cost per tie.
Total.....	6,074,291	\$4,376,477	\$0.56	3,539,640	\$2,038,568	\$0.58
Oaks.....	2,332,970	1,483,468	0.59	1,125,308	694,253	0.62
Southern pines.....	397,221	336,111	0.40	572,425	408,438	0.71
Douglas fir.....	194,807	96,085	0.49	526,361	247,198	0.47
Cedar.....	420,552	199,646	0.47	194,010	96,957	0.50
Chestnut.....	1,407,479	697,843	0.50	631,595	309,985	0.49
Cypress.....	194,634	88,015	0.47	13,755	7,985	0.58
Western pine.....	48,200	27,631	0.57	137,063	73,835	0.55
Tamarack.....	8,007	3,320	0.41	60,438	30,170	0.43
Hemlock.....	3,528	1,476	0.42			
Redwood.....	800,290	379,795	0.48	130,621	87,023	0.62
White pine.....	4,129	2,079	0.50	49,031	31,958	0.65
All other kinds.....	72,474	43,018	0.59	79,252	48,795	0.62

Overhead line construction.—By length of line, in this discussion, is meant the length of the first main track or of the roadbed. Where there is a double track or sidings and turn-outs the single-track mileage will exceed the length of line. Statistics concerning character of line construction were limited to the overhead trolley system. This system was in use on all or a portion of the line of 895 of the 945 companies reported for 1907. As the track they operated by overhead trolley constituted 94.5 per cent of the total miles of track, the statistics cover nearly all the line construction in use in the United States. The length of line operated by overhead trolley increased from 15,857.26 miles in 1902 to 25,060.29 miles in 1907, or 58 per cent.

TABLE 32.—Overhead trolley-line construction, by kind: 1907 and 1902.

KIND OF CONSTRUCTION.	MILES OF LINE.				Per cent of increase.
	1907	1902	Per cent of total.		
			1907	1902	
Total.....	25,060.29	15,857.26	100.0	100.0	58.0
Span-wire.....	14,083.16	10,230.07	56.2	64.5	37.9
Side-bracket.....	10,173.53	5,223.08	40.6	32.9	94.8
Center-pole.....	793.60	414.11	3.2	2.6	91.6

Span-wire construction.—Of the various forms of overhead line construction, span-wire was the most popular form at both censuses, though its relative

importance decreased slightly from 1902 to 1907. It was used on nearly two-thirds of the line operated in 1902 and on slightly less than four-sevenths of that in operation during 1907. While there were no states in 1907, and only 2—Idaho and Nebraska—in 1902, in which span-wire was the only form of construction used, there were 35 states in 1907 and 36 in 1902 in which the length of span-wire construction exceeded the length of all other kinds of construction combined.

Side-bracket construction. Next to span-wire construction, side-bracket construction was in most general use. In 1907, as compared with 1902, this latter form of construction increased by 4,950.45 miles, or 94.8 per cent. This great increase—greater than that shown for either of the other forms of construction—is due primarily to the development of the interurban systems. In 1907 there were 9 states—Idaho, Indiana, Maine, Massachusetts, New Hampshire, Ohio, Rhode Island, South Carolina, and Vermont—in which the total side-bracket construction exceeded the span-wire construction. In 16 states the absolute or mileage increase in side-bracket exceeded the gain in span-wire construction. Five of these states—Ohio, Indiana, Illinois, Michigan, and Iowa—comprise the territory of most active interurban development, and they show an increase of 2,908.76 miles in side-bracket construction for 1907 over 1902 as compared with an increase of 753.25 miles in span-wire construction. The other

11 states in which the increase in side-bracket exceeded the gain in span-wire are Maine, New Hampshire, Massachusetts, Rhode Island, Virginia, South Carolina, Kansas, Kentucky, Montana, Idaho, and Arizona. Decreases in total miles of side-bracket construction in 1907 as compared with 1902 are shown for Colorado, Delaware, and Tennessee, while decreases in total miles of span-wire are shown for Maine and Montana.

Center-pole construction.—A comparatively small proportion of the overhead line is supported by center poles. In 1907, 230.53 miles, or nearly three-tenths, of the center-pole construction was in California, and most of this was new construction, the increase in that year as compared with 1902 amounting to 206.09 miles. The next largest increase was in New York, the gain being from 32.41 miles in 1902 to 105.06 miles in 1907; or 72.65 miles. The increases next in rank were 29.38 miles for Maryland, 24.51 miles for Michigan, and 22.86 miles for Massachusetts. A decrease in center-pole construction is shown in 9 states, the largest decreases being 36.36 miles in Minnesota, 8.38 miles in Georgia, and 8.11 miles in Indiana.

Line supports.—The increase in the use of steel, iron, or concrete poles for overhead line construction is a matter of considerable interest. Table 33 shows the number of companies using the different kinds of line supports and the amount of line supported thereby.

TABLE 33. OVERHEAD TROLLEY-LINE CONSTRUCTION, BY CHARACTER OF LINE SUPPORTS: 1907 AND 1902.

CHARACTER OF LINE SUPPORTS.	MILES OF LINE.							
	Total.		Steel, iron, or concrete poles exclusively.		Steel, iron, or concrete and wooden poles.		Wooden poles exclusively.	
	1907	1902	1907	1902	1907	1902	1907	1902
Number of companies.....	895	1,734	21	14	232	189	642	531
Miles of line.....	25,090.29	15,857.20	539.57	346.80	13,288.01	8,232.30	11,232.71	7,278.20
Supported by poles.....	24,930.11	15,841.34	487.85	334.09	13,228.44	8,229.70	11,213.92	7,277.55
Steel, iron, or concrete.....	3,773.92	3,112.58	487.85	334.09	3,286.07	2,778.49	.....	.....
Wooden.....	21,156.19	12,728.76	.....	.....	9,942.37	5,451.21	11,213.92	7,277.55
Supported by elevated railroad structures, buildings, bridges, etc.	130.18	15.86	51.72	12.77	50.57	2.50	18.99	65

Exclusive of 2 companies which failed to furnish this information.

Although only 21 companies in 1907 and 14 in 1902 used steel, iron, or concrete poles exclusively, this character of supports was used on 15.1 per cent of the total miles of line in 1907 and on 19.6 per cent of the total in 1902.

Table 34 shows the miles of line and character of supports in the different states for 1907 and 1902.

All states that had 10 per cent or more of the construction supported by steel or iron poles in 1907 are shown separately in Table 34. The largest increase in steel, iron, or concrete pole line was 162.78 miles in Pennsylvania; other large increases were 120.78 miles in Missouri and 87.90 miles in New Jersey. The largest relative increase, however, was for Nebraska and amounted to 136 per cent. A considerable decrease in

miles of line with iron, steel, or concrete poles appeared in Michigan, and smaller decreases in Connecticut, Massachusetts, and Louisiana. There was a slight decrease in miles of wooden-pole line in Missouri, which state had a heavy increase in steel, iron, or concrete pole line. Minnesota and Missouri are the only states in which the mileage of line construction supported by steel, iron, or concrete poles exceeded the miles of line with wooden poles.

The decrease in iron and steel poles as shown by the census statistics does not accord with the facts. In Louisiana the decrease reflects actual conditions, as creosoted poles were substituted for the iron poles in use in 1902, and a very small part of the large decrease shown for Michigan was also actual, the result of the

removal, by 1 company, of some of its iron poles, when the streets were graded and paved. But the remainder of the decrease for Michigan, as well as the

decrease shown for Connecticut and Massachusetts, can be explained only on the ground that the iron and steel pole line reported in 1902 was overstated.

TABLE 34.—OVERHEAD TROLLEY-LINE CONSTRUCTION, BY CHARACTER OF LINE SUPPORTS, BY STATES: 1907 AND 1902.

STATE.	MILES OF LINE.								Per cent of increase.		
	Total.		Steel, iron, or concrete poles.		Wooden poles.						
	1907	1902	1907	1902	1907	1902	Total.	Steel, iron, or concrete poles.	Wooden poles.		
Total.....	24,930.11	15,841.34	3,773.92	3,112.58	21,156.19	12,728.76	57.4	21.2	66.2		
California.....	1,158.09	422.65	170.64	101.33	978.45	321.32	174.0	77.3	204.5		
Connecticut.....	707.69	440.04	72.96	89.30	634.73	350.73	60.8	118.3	81.0		
District of Columbia.....	40.12	39.18	7.73	7.44	32.39	31.74	2.4	3.9	2.0		
Illinois.....	1,818.00	980.75	336.71	264.35	1,491.29	716.40	104.1	23.6	138.1		
Louisiana.....	162.56	129.17	34.22	28.55	128.34	90.62	23.8	11.2	41.6		
Maryland.....	331.49	258.78	119.59	119.32	211.90	139.46	28.1	0.2	51.9		
Massachusetts.....	2,280.87	2,019.55	282.77	294.91	1,998.10	1,724.64	12.9	4.1	15.9		
Michigan.....	936.60	774.82	107.24	162.45	829.36	608.37	20.9	38.7	37.0		
Minnesota.....	261.04	189.64	138.19	104.36	122.85	85.28	37.7	28.4	53.1		
Missouri.....	546.01	431.01	285.09	164.31	260.92	266.70	28.7	73.5	2.2		
Nebraska.....	131.33	63.08	14.16	6.00	117.17	57.08	108.2	138.0	105.3		
New Jersey.....	548.27	571.62	279.30	191.46	268.91	380.16	48.4	45.9	49.7		
New York.....	2,108.87	1,532.48	563.55	485.28	1,545.32	1,047.20	37.6	16.1	47.6		
Ohio.....	3,096.68	1,857.20	371.19	302.41	2,725.49	1,554.79	61.9	22.7	69.5		
Pennsylvania.....	2,905.73	1,962.30	702.88	640.20	2,202.85	1,322.10	43.8	30.1	51.7		
Wisconsin.....	435.53	298.13	59.70	66.10	375.83	232.03	43.6	29.5	48.5		
All other states.....	7,251.19	3,929.86	228.85	182.81	7,022.34	3,747.05	84.5	25.2	87.4		

¹ Exclusive of 130.18 miles of construction supported by structures other than poles.
² Exclusive of 16.92 miles of construction supported by structures other than poles.
³ Decrease.

Steel and iron supports are confined, to a large extent, to the companies operating in the larger cities. Concrete poles have lately come into use and were covered by the inquiry for 1907, but, as they were not reported apart from steel and iron poles, the extent to

which they are used can not be ascertained from the census statistics.

Cost of poles, which to many companies is an important item of expense, amounted in 1907 to \$1,459,942, as shown by Table 35.

TABLE 35.—WOODEN POLES PURCHASED—NUMBER AND COST, BY LENGTH AND KIND OF WOOD: 1907.

KIND OF WOOD.	TOTAL.			UNDER 20 FEET.			20 FEET BUT UNDER 25 FEET.			25 FEET BUT UNDER 30 FEET.			30 FEET BUT UNDER 35 FEET.		
	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.
Total.....	297,197	\$1,459,942	\$4.91	678	\$1,993	\$2.94	2,402	\$3,211	\$2.17	20,639	\$63,412	\$3.07	92,515	\$324,069	\$3.50
Cedar.....	129,127	745,488	5.77	66	172	2.61	2,210	4,572	2.07	8,318	20,358	2.45	31,087	121,785	3.92
Chestnut.....	85,398	341,973	4.00	612	1,821	2.98	93	265	2.86	7,407	20,804	2.74	35,392	114,162	3.23
Cypress.....	54,799	223,618	4.08							2,102	4,155	1.98	15,833	46,863	2.90
Pine.....	13,017	88,007	6.73				99	373	3.77	1,416	12,963	9.15	5,500	25,438	4.61
Juniper.....	9,548	26,454	2.77							391	908	2.32	3,374	11,816	3.50
Oak.....	1,000	3,000	3.00										1,000	3,000	3.00
Redwood.....	669	3,419	5.11							500	2,500	5.00	31	285	9.19
Tamarack.....	96	408	4.25												
All other kinds.....	2,643	17,481	6.61							305	1,614	5.29	296	785	2.65

KIND OF WOOD.	35 FEET BUT UNDER 40 FEET.			40 FEET BUT UNDER 45 FEET.			45 FEET BUT UNDER 50 FEET.			50 FEET BUT UNDER 55 FEET.			55 FEET BUT UNDER 60 FEET.			60 FEET AND OVER.		
	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.	Number.	Cost at point of purchase.	Average cost per pole.
Total.....	97,003	\$430,297	\$4.44	55,271	\$342,542	\$6.20	16,713	\$159,287	\$9.51	6,372	\$65,222	\$10.24	1,500	\$15,316	\$10.21	2,104	\$23,593	\$11.21
Cedar.....	43,388	235,834	5.44	29,122	208,506	7.15	9,739	100,744	10.34	2,246	37,108	16.52	833	6,624	7.95	1,080	9,844	9.11
Chestnut.....	25,554	104,897	4.10	9,418	88,134	9.36	4,054	30,865	7.61	1,632	14,856	9.10	197	1,980	10.05	200	3,038	15.19
Cypress.....	17,967	70,683	3.93	13,579	66,352	4.89	3,946	24,912	6.31	1,015	8,150	8.03	31	293	9.45	303	3,180	10.39
Pine.....	4,071	23,616	5.80	1,816	12,530	6.90	171	1,399	8.18	312	3,276	10.50	134	1,584	11.82	306	5,628	18.40
Juniper.....	4,347	17,041	3.92	1,190	4,002	3.36	145	924	6.37	95	824	8.67	5	35	7.00	1	8	8.00
Oak.....																		
Redwood.....	138	621	4.50															
Tamarack.....				96	408	4.25												
All other kinds.....	1,520	6,605	4.35	20	420	21.00	28	353	12.61	72	1,008	14.00	300	4,800	16.00	100	1,895	18.95

Steam-railroad crossings.—For census purposes a protected crossing is defined as one at which a flagman is stationed, or one that has an alarm bell, elevated or depressed tracks, or similar positive protection or warning. Warning signs or orders to motormen to stop while the conductor runs forward at track crossings were not regarded by the census as a protection of railroad crossings. There were 6,279 crossings reported in 1907 as compared with 4,481 in 1902, an increase of 40.1 per cent. Of these, 3,690 were protected in 1907 as compared with 2,514 in 1902, an increase of 46.8 per cent; and 2,589 were unprotected in 1907 as compared with 1,967 in 1902, an increase of 31.6 per cent. In 1907 the protected crossings constituted 58.8 per cent of the total number and the unprotected 41.2 per cent, as compared with 56.1 per cent protected and 43.9 unprotected in 1902. The increase in the number of protected crossings is due not only to the installation on old lines of protecting devices where there were none in 1902, but also to the growing practice of installing protective devices on new lines or on extensions of old lines.

The inquiry in regard to number of steam-railroad crossings was subject to misinterpretation by the companies reporting; and some of them are known to have counted as crossings the number of separate tracks crossed rather than the number of points of intersection of the lines. Hence the number of crossings is to some extent inflated.

Table 36 shows the number of crossings, protected and unprotected, by states, for all states having at least 100 steam-railroad crossings in either 1907 or 1902.

TABLE 36.—Steam-railroad crossings—Number protected and unprotected, respectively, by states: 1907 and 1902.

STATE.	TOTAL.		PROTECTED.		UNPROTECTED.	
	1907	1902	1907	1902	1907	1902
United States.....	6,279	4,481	3,690	2,514	2,589	1,967
Alabama.....	112	77	13	10	99	67
California.....	224	112	102	47	122	65
Connecticut.....	103	29	98	25	5	4
Illinois.....	945	809	381	591	264	218
Indiana.....	346	234	158	103	188	131
Iowa.....	168	116	61	61	107	55
Kentucky.....	100	76	58	38	42	38
Massachusetts.....	329	282	246	257	83	25
Michigan.....	369	279	229	186	140	93
Missouri.....	141	83	95	19	46	64
New Jersey.....	271	113	292	85	69	28
New York.....	468	395	401	228	67	77
Ohio.....	534	392	349	261	185	131
Pennsylvania.....	808	488	553	184	313	295
Tennessee.....	41	157	40	90	1	67
Texas.....	195	121	34	17	162	104
Washington.....	106	29	38	3	68	26
Wisconsin.....	161	109	72	60	89	49
All other states.....	1,065	670	520	291	545	379

The largest ratios of protected crossings reported in 1907 were for Connecticut, New York, Massachusetts, and New Jersey, in the order named, and the largest ratios of unprotected crossings for Texas, Washington, Iowa, and Wisconsin. The largest absolute

increase in number of crossings was for Pennsylvania, and the highest ratio of increase for Washington.

In 1907 there was an average of 5.48 miles of track of electric railways per steam-railroad crossing as compared with only 5.04 miles per crossing in 1902. Of the states shown in detail in the table, the largest trackage per crossing in 1907 appears in the case of California, with 8.99 miles of track, followed by Massachusetts, with 8.77 miles; New York, with 8.30 miles; and Connecticut, with 7.58 miles. The lowest trackage per crossing was in Texas, with 2.13 miles of track, followed by Alabama, with 2.60 miles; Wisconsin, with 3.67 miles; Michigan, with 3.76 miles; and Iowa, with 3.81 miles.

The most marked concentration of steam-railroad crossings is in the Chicago, Ill., district. Of the 665 crossings in the state in 1907, 357 were in the Chicago district, 226 being protected and 131 unprotected; in 1902, out of a total of 809, this district reported 653 crossings, of which 528 were protected and 125 unprotected.

*Subways and tunnels.*¹—The subways and tunnels reported at the census of 1907 do not include the undercrossings of steam-railroad tracks, and for purposes of comparison the figures for the census of 1902 have been revised to eliminate tunnels of this character.

In 1907 there were 9 companies operating track in subways and tunnels, which had an aggregate length of 28.98 miles as compared with a total length of 2.87 miles of subways and tunnels operated by 4 companies in 1902. Therefore the length of subways and tunnels was over ten times as great in 1907 as in 1902. In 1902 a little more than one-half of the length of subways and tunnels was represented by the 1.62 miles of subway in Boston, Mass., operated by the Boston Elevated Railway Company, and slightly more than one-third, by tunnels of the Chicago Union Traction Company, under the Chicago River, and the remainder consisted of tunnels of the Metropolitan Street Railway Company, of Kansas City, Mo., and the United Railroads of San Francisco. The great increase of mileage between 1902 and 1907 is due to the opening of the New York City subway, operated by the Interborough Rapid Transit Company; the East Boston tunnel, operated by the Boston Elevated Railway Company; the subway of the Philadelphia Rapid Transit Company; and the tunnels of the Wilkes-Barre and Hazleton Railway Company, the Pittsburgh Railways Company, and the Lackawanna and Wyoming Valley Railroad Company.

The 28.98 miles of subway and tunnels shown in Table 184 is exclusive of the 42.50 miles operated by the Illinois Tunnel Company of Chicago, Ill., which is used exclusively for mail, freight, and refuse, and,

¹ See also p. 236.

though an electric road, is engaged in a peculiar class of service. Statistics concerning it should not be combined with those for other roads. Nor is the mileage of any part of the Hudson River tunnel system (New York) included in the total length of subways and tunnels for 1907, as these properties were under construction during the census year and were opened for traffic in 1908.

Underground conduits for mains and feeders.—The miles of street occupied by underground construction, exclusive of subways and tunnels, increased from 589.30 in 1902 to 891.54 in 1907, an increase of 302.24 miles, or 51.3 per cent. There were 322.70 miles of track operated by conduit trolley during 1907, and 170.06 miles of the 891.54 miles of underground construction was reported by the conduit trolley lines. The majority of the mains and feeders are still carried overhead, and feeder conduits are found only in the larger cities.

The following table shows the miles of street occupied by underground conduits for mains and feeders as reported at the censuses of 1907 and 1902:

TABLE 37. Miles of street occupied by feeder-conduit system, by states: 1907 and 1902.

STATE.	1907	1902	Per cent of increase.
United States.....	891.54	589.30	51.3
California.....	1.00		
Connecticut.....	1.00		
District of Columbia.....	139.99	28.90	38.4
Georgia.....	7.00	8.30	15.7
Illinois.....	33.15	32.60	1.7
Kentucky.....	4.00		
Louisiana.....	1.32		
Maryland.....	20.25		
Massachusetts.....	50.34	33.00	52.5
Michigan.....		.10	100.0
Minnesota.....	26.93	14.00	131.8
Missouri.....	10.80	1.30	730.8
Nebraska.....	3.41		
New Jersey.....	14.84	3.70	301.1
New York.....	201.83	145.80	79.6
Ohio.....	2.18	6.00	63.7
Pennsylvania.....	242.50	204.80	18.4
Tennessee.....	10.00		
Utah.....	1.30		
Vermont.....	.12		
Washington.....	2.90		
Wisconsin.....	146.47	110.80	32.2

* Includes 3.28 miles of construction for conduit trolley in District of Columbia of roads operating in Virginia.

† Decrease.

‡ Includes 130.97 miles of construction for conduit trolley in New York City.

The underground conduits for mains and feeders in 1902 were in the following cities and urban districts:

State.	City.
District of Columbia.....	Washington.
Georgia.....	Atlanta.
Illinois.....	Chicago.
Massachusetts.....	Boston and vicinity.
Massachusetts.....	New Bedford.
Massachusetts.....	Pittsfield.
Massachusetts.....	Springfield.
Michigan.....	Bay City.
Minnesota.....	Minneapolis.
Minnesota.....	St. Paul.
Missouri.....	St. Louis.
New Jersey.....	Jersey City and vicinity.
New York.....	Buffalo.
New York.....	New York City.
New York.....	Rochester.
Ohio.....	Toledo.
Pennsylvania.....	Philadelphia.
Wisconsin.....	Milwaukee.

At the census of 1907 all these cities, with the exception of Pittsfield, Bay City, and St. Louis, again appear in the list of cities from which underground-conduit systems were reported, and with them are to be joined:

State.	City.
California.....	San Francisco.
Connecticut.....	New Haven.
Illinois.....	Decatur.
Kentucky.....	Louisville.
Louisiana.....	New Orleans.
Maryland.....	Baltimore.
Missouri.....	Kansas City.
Nebraska.....	Omaha.
New York.....	Poughkeepsie.
New York.....	Schenectady.
New York.....	Syracuse.
Ohio.....	Akron.
Pennsylvania.....	Pittsburg.
Tennessee.....	Nashville.
Utah.....	Salt Lake City.
Vermont.....	Brattleboro.
Washington.....	Seattle.

CARS AND CAR EQUIPMENT.

The different types of cars used in 1907 and the improvements in construction since 1902 are described in Chapter I of Part II. The following table shows the numbers of the different varieties of cars that were reported separately at the last two censuses:

TABLE 38. Cars—Number and kind: 1907 and 1902.

KIND.	NUMBER.			
	1907	1902	Per cent of total.	
			1907	1902
Aggregate.....	83,423	66,794	100.0	100.0
Passenger, total.....	70,016	60,200	83.7	90.3
Closed.....	40,352	32,659	48.2	48.9
Open.....	22,537	24,259	26.9	36.3
Combination.....				
Closed and open.....	6,462	3,134	7.7	4.7
Passenger and express, freight, or mail.....	567	239	0.7	0.4
Special—parlor, sleeping, dining, private, etc.....	118	(*)	0.1	
Express, freight, and mail.....	3,660	1,114	6.8	1.7
Work and miscellaneous.....	3,071	2,900	6.0	4.3
Snowplows.....	1,883	1,727	2.3	2.6
Sweepers and sprinklers.....	1,062	703	1.3	1.2
Motor cars.....	68,974	50,099	82.3	75.9
Trailers.....	14,767	16,085	17.7	24.1
Locomotives.....	20	425	0.0	100.0
Electric.....	117	3	56.0	0.7
Steam.....	92	422	44.0	50.3

* Decrease.

† Not reported separately.

‡ Includes 67 cars of exclusively animal-power roads.

§ Includes 567 cars of exclusively animal-power roads.

Of the total number of cars reported at the census of 1907, 83,423, or 99.7 per cent, were operated on roads that were wholly or in part electric; 97 cars, on roads that were exclusively animal; 74, on exclusively cable roads; 15, on steam roads; and 32, on gasoline-motor lines.

Passenger cars.—The relatively small increase in number of passenger cars, which is due primarily to the increase in the size of cars used, has caused a decrease in the proportion that such cars form of the total number of cars for 1907 as compared with 1902.

Although the number of open cars decreased, the increase in combination open and closed cars was large and the number of open and combination open and closed cars taken together aggregated 28,979 in 1907 as compared with 27,393 in 1902.

The inquiry regarding special cars was made for the first time at the census of 1907. The following statement distributes the total of such cars among the various kinds, as far as the distinction was indicated by the companies reporting:

Special cars: 1907.

KIND.	Number.
Total.....	118
Parlor.....	47
Private.....	32
Funeral.....	9
Pay.....	4
Sleeping.....	2
Dining.....	2
Hospital.....	1
Kind not reported.....	21

Express, freight, and mail cars.—The development of freight and express traffic on interurban and rural lines has resulted in a large increase in cars especially equipped for this service. While the increases in trackage, capitalization, earnings from operation, etc., as shown elsewhere, range from 50 to 70 per cent, the increase in number of express, freight, and mail cars and in income from freight business is over 400 per cent.

The distribution, by states, of the express, freight, and mail cars is shown in Table 39, which gives the number of such cars for every state reporting at least 100 express, freight, and mail cars in 1907.

TABLE 39.—*Express, freight, and mail cars—Number, by states: 1907 and 1902*

STATE.	NUMBER		
	1907	1902	Increase.
United States.....	5,699	1,114	4,585
Illinois.....	1,384	251	1,133
California.....	971	48	923
Washington.....	837	14	823
New York.....	425	181	244
Pennsylvania.....	412	51	361
Ohio.....	305	44	261
Oregon.....	179	5	174
Iowa.....	140	41	99
All other states.....	1,016	479	537

The St. Louis and Belleville Electric Railway Company, of Illinois, with a traffic that is entirely freight, operated the largest number of cars of this class reported for 1907.

The companies reporting the largest number of express, freight, and mail cars in 1907 were, in the order of the number of their cars, as follows:

STATE.	Name of company.	Number of express, freight, and mail cars.
Illinois.....	St. Louis and Belleville Electric Ry. Co.....	631
Washington.....	Spokane and Inland Empire R. R. Co.....	457
California.....	Northern Electric Ry. Co.....	408
Pennsylvania.....	Pittsburg Rys. Co.....	305
Illinois.....	East St. Louis and Suburban Ry. Co.....	303
California.....	Los Angeles Interurban Ry. Co.....	240
Washington.....	Puget Sound Electric Ry.....	173
Oregon.....	Portland Railway, Light and Power Co.....	153

The express, freight, and mail cars of the above 8 companies comprised nearly one-half of the total number. It is clear that the most extensive development of freight business by electric railways has taken place on the Pacific coast, where 5 of the above companies, with 1,431 cars, were operating.

Work cars and miscellaneous cars.—The statistics in regard to work cars and miscellaneous cars do not disclose any features of special note. The increase in number is in keeping with the normal increase in trackage and equipment, though, by reason of the increase in size of passenger cars, as explained above, the proportion that the number of work cars and miscellaneous cars forms of the total number of cars shows a slight increase in 1907 as compared with 1902.

Snowplows, sweepers, and sprinklers.—Snowplows are found chiefly in New England and the northern tier of states, while farther south sweepers are in more general use for clearing tracks of snow. Since the area in which snowplows are employed is restricted, the absolute increase in their number is small. The New England states reported 1,073 snowplows in 1907 as compared with 936 in 1902, and 38 sweepers and sprinklers in 1907 as compared with 30 sweepers in 1902; while the states of New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia showed 459 snowplows in 1907 as compared with 437 in 1902, and 590 sweepers and sprinklers in 1907 as compared with 477 sweepers in 1902.

Cars, by states and geographic divisions.—The statistics of distribution of the different classes of cars by geographic divisions for 1907 and 1902, given in Table 40, show again the large increase in express, freight, and mail cars in the Western and Northern states, and also show the growing use of combination closed and open cars as substitutes for open cars, particularly in the northern and western districts.

TRACK AND ROLLING STOCK.

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TABLE 40.—CARS—NUMBER AND KIND, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	NUMBER OF CARS.												
		Aggregate.	Passenger.					Parlor, sleeping, dining, and private.	Express, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweepers and sprinklers.	Motor cars.	Trailers.
			Total.	Closed.	Open.	Combination.								
						Closed and open.	Passenger and express, etc.							
United States.....	1907	83,641	70,016	40,352	22,537	6,442	567	118	5,669	5,011	1,883	1,062	66,874	14,767
	1902	66,784	60,290	32,636	24,259	3,134	239	(1)	1,114	2,840	1,727	793	50,699	16,085
North Atlantic division.....	1907	40,658	35,379	19,827	13,189	2,150	174	30	1,205	2,010	1,515	549	36,466	4,192
	1902	34,763	31,319	16,916	13,503	820	80		445	1,181	1,359	448	29,190	5,567
Maine.....	1907	658	484	210	261	6	6	1	63	55	66		566	92
	1902	596	476	199	274	1	2		23	43	46		469	129
New Hampshire.....	1907	263	203	147	151	1	3	1	4	24	31	1	254	9
	1902	287	244	96	146	1	1		2	16	22	3	234	53
Vermont.....	1907	159	126	48	64	3	11		11	10	9	3	135	24
	1902	103	80	31	41	2	6		7	8	8	2	90	15
Massachusetts.....	1907	8,673	7,612	3,678	3,815	104	5	10	91	345	812	13	7,801	317
	1902	8,310	7,275	3,401	3,869		5		94	197	788	4	6,601	509
Rhode Island.....	1907	1,171	952	488	428	30	5	1	87	67	65		1,049	122
	1902	820	708	371	322		15		21	40	51		702	58
Connecticut.....	1907	1,550	1,279	579	602	4	4		99	51	100	21	1,395	155
	1902	1,390	1,196	545	647		4		48	46	69	21	1,213	167
New York.....	1907	15,813	14,251	8,310	3,964	1,901	60	16	425	668	1,000	222	13,100	2,455
	1902	14,040	12,978	7,888	4,026	448	16		181	452	241	188	10,222	3,818
New Jersey.....	1907	2,830	2,565	1,549	938	35	5	3	13	229	38	65	2,453	77
	1902	2,165	1,942	1,083	832	22	5		9	94	45	75	1,955	210
Pennsylvania.....	1907	9,141	7,805	4,778	2,891	66	75	7	412	561	158	208	8,200	941
	1902	7,658	6,420	3,262	2,746	345	26		51	285	147	155	6,450	608
South Atlantic division.....	1907	6,002	5,414	2,498	2,074	806	24	8	232	236	22	99	5,010	992
	1902	4,904	4,290	1,997	2,011	281	21		128	116	5	65	3,746	858
Delaware.....	1907	212	197	103	92		2		1	8	1	5	212	
	1902	163	151	80	68		3			7	1	4	150	9
Maryland.....	1907	1,754	1,586	665	527	581	9	4	78	32	13	47	1,687	67
	1902	1,589	1,487	622	604	196	5		42	27	1	32	1,533	56
District of Columbia.....	1907	1,259	1,190	663	521	5		1	7	32	3	27	854	405
	1902	1,010	977	409	533	35			4	4	2	23	638	372
Virginia.....	1907	1,072	915	442	308	156	6	3	71	71	1	14	796	286
	1902	681	626	356	256	6	8		25	25	1	4	461	220
West Virginia.....	1907	445	415	213	169	30	3		10	20		3	394	54
	1902	287	272	126	124	11	1		3	11		1	276	11
North Carolina.....	1907	229	197	96	96	4	2		5	23	4		193	36
	1902	121	99	48	48	2	1		25	7			84	47
South Carolina.....	1907	189	176	113	47	15	1		4	9			170	19
	1902	135	123	78	35	8	2		6	6			106	29
Georgia.....	1907	618	589	348	194	7			33	35		1	532	86
	1902	497	454	228	223	3			17	25		1	408	89
Florida.....	1907	221	189	56	124	8	1		25	6		1	182	39
	1902	111	101	50	50		1		6	4			85	26
North Central division.....	1907	25,582	20,959	13,987	5,895	946	299	52	2,068	1,571	319	865	19,424	6,158
	1902	20,712	19,643	10,826	7,258	442	117		431	1,071	310	257	13,085	7,627
Ohio.....	1907	5,690	4,774	2,004	1,405	630	117	18	305	418	42	110	5,090	600
	1902	4,305	3,975	2,277	1,594	34	70		44	275	47	54	3,188	1,207
Indiana.....	1907	1,669	1,374	799	478	2	92	3	64	217	30	14	1,430	239
	1902	1,146	908	515	407	4	12		5	114	11	15	818	328
Illinois.....	1907	9,330	7,290	5,152	2,056	17	20	13	1,354	407	162	117	5,802	3,788
	1902	7,778	7,021	3,815	3,112	76	18		251	209	111	86	5,315	4,463
Michigan.....	1907	2,382	1,945	1,255	548	99	20	3	96	263	44	12	1,900	422
	1902	1,757	1,531	919	588	15	9		48	132	38		1,400	291
Wisconsin.....	1907	1,181	954	759	191	3	3	1	6	183	17	21	901	280
	1902	962	821	421	196	2	2		1	36	12	12	699	83
Minnesota.....	1907	754	730	716	3			2	2	22	10		730	15
	1902	1,063	1,026	717	309					22	21	4	814	269

¹ Not reported separately.

STREET AND ELECTRIC RAILWAYS.

TABLE 40.—CARS—NUMBER AND KIND, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OR TERRITORY.	Census.	NUMBER OF CARS.												
		Aggregate.	Passenger.			Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprink-ers.	Motor cars.	Trail-ers.			
			Total.	Closed.	Open.									
					Closed and open.	Passen-ger and express, etc.	Parlor, sleep-ing, dining, and private							
North Central division—Continued.														
Iowa.....	1907	1,080	853	474	346	1	30	2	140	56	16	15	729	331
	1902	858	675	391	281		3		41	115	16	11	535	323
Missouri.....	1907	2,557	2,270	1,772	313	174	2	9	27	195	8	57	2,319	238
	1902	2,464	2,305	1,465	527	310	3		27	86	6	60	1,932	352
North Dakota ¹	1907	32	48	18	20		1			1	2	1	27	25
South Dakota.....	1907	5	3			3				2			3	2
	1902	2	2	2										2
Nebraska.....	1907	518	483	254	200	17	2	1	3	17	4	11	455	63
	1902	295	282	163	118	1			1	5		7	271	24
Kansas.....	1907	334	275	184	86		5		19	29	4	7	219	115
	1902	232	207	141	66				10	7	8		167	85
South Central division.....	1907	4,177	3,801	2,467	1,094	224	12	4	68	284	2	22	3,517	660
	1902	3,249	3,007	2,015	878	103	11		32	180	19	11	2,494	755
Kentucky.....	1907	879	808	525	176	103	3	1	11	47	1	12	764	115
	1902	976	889	617	198	73	1		2	59	17	9	704	272
Tennessee.....	1907	747	684	434	236	12			5	52	1	5	631	96
	1902	575	553	326	222	5	2		3	14	2	1	470	105
Alabama.....	1907	595	488	313	169	6			35	73			414	182
	1902	370	311	175	125	8	3		21	28			233	137
Mississippi.....	1907	139	124	64	43	15	2		2	12		1	115	24
	1902	49	47	31	16					2			37	12
Louisiana.....	1907	631	599	554	28	15		2	1	31			550	75
	1902	670	626	551	60	6				43		1	505	75
Arkansas.....	1907	212	202	99	86	17			1	7		2	195	17
	1902	135	130	85	45				2	3			89	46
Oklahoma ¹	1907	146	117	71	45		1		8	21			112	34
Texas.....	1907	827	779	497	309	56	6	1	5	41		2	710	117
	1902	474	449	230	203	11	5		4	21			305	108
Western division.....	1907	7,222	4,463	1,573	491	2,316	68	15	2,096	610	25	28	4,457	2,765
	1902	3,456	3,031	904	609	1,508	10		77	312	24	12	2,178	1,276
Montana.....	1907	126	109	73	33	2			4	9	3	2	104	22
	1902	109	90	62	28				9	6	2	2	79	30
Idaho.....	1907	28	22	9		11	2		6				23	5
	1902	3	3	3									3	
Colorado.....	1907	631	474	243	91	138	2		98	45	10	4	422	209
	1902	393	352	99	85	167			1	24	11	5	345	48
New Mexico.....	1907	13	12	5		7			1				13	8
	1902	8	8	6	2									
Arizona.....	1907	27	27	5	7	15							24	3
	1902	19	17	5	8	4				2			12	7
Utah.....	1907	198	151	100	45					28	3	6	157	41
	1902	158	149	95	52	2				6	2	1	132	36
Nevada ¹	1907	7	6	2		4				1			7	
Washington.....	1907	1,762	791	354	80	314	39	4	837	116	7	11	797	965
	1902	431	312	126	77	109			14	90	6		268	163
Oregon.....	1907	670	466	323	129	10	3	1	179	18	2	5	435	235
	1902	279	250	150	77	23			5	19	1	4	200	79
California.....	1907	3,760	2,406	453	106	1,815	22	10	971	383			2,475	1,285
	1902	2,066	1,850	358	279	1,203	10		44	156	2		1,139	917

¹ No company reported in 1902.

The proportionate decrease in open cars was greatest in the North Central division, followed by the Western and the North Atlantic divisions. There was an increase in the South Central division and also in the South Atlantic division, but in the latter it was very slight. The proportionate increase in combination closed and open cars was largely in excess of the increase in all cars in the case of every division except the Western. For each division the proportionate increase in express, freight, and mail cars in 1907 as compared with 1902 was largely in excess of the corresponding increase in passenger cars.

Motor cars and trailers.—The cars reported as motor cars are those which, when in use, are operated with motors, and include the gasoline motor cars, gas-electric motor cars, storage-battery cars, and the grip cars of surface cable lines, in addition to the regular electric motor cars using transmitted current. With the class of trailers are included the cars of animal and steam roads and the cars of inclined cable roads, as well as the trailers of electric and surface cable lines. Of the 83,641 cars of all varieties reported at the census of 1907, 68,874, or 82.3 per cent, were motor cars and 14,767, or 17.7 per cent, were trailers; the percentages for 1902 were 75.9 for motor cars and 24.1 for trailers.

The marked decrease in the total number of trailers and the countervailing increase in the number of

motor cars is due, in part, to the electrification of old roads and, to a large degree, to the use of larger motor cars with the consequent abandonment of trailers. On the other hand, in certain districts, particularly on the Pacific coast, there has been an increase in the number of trailers, chiefly on lines doing a heavy freight traffic and employing electric or steam locomotives.

The greatest proportionate decrease in number of trailers was in the North Atlantic division, but decreases are also shown for the North Central and the South Central divisions. In the South Atlantic division the number of trailers increased, but the ratio of increase was less than for the motors. Only in the Western division was the ratio of increase for trailers greater than that for motors. The state of Washington in 1907 had 797 motor cars and 965 trailers as compared with 268 motor cars and 163 trailers in 1902.

The census of 1907 was the first to seek information concerning the number of motor equipments of one, two, three, and four motors, respectively, available for motor cars. It is a common practice to transfer motors from winter to summer cars and vice versa, and hence in many cases the number of motor equipments owned by a company does not equal the number of its motor cars. The number of motor equipments, however, represents approximately the number of motor cars available for service at any one time.

TABLE 41. —MOTOR CARS AND MOTOR EQUIPMENTS, BY GEOGRAPHIC DIVISIONS: 1907.

DIVISION.	Number of motor cars.	MOTOR EQUIPMENTS FOR MOTOR CARS.								
		Total.	One- motor.	Two- motor.	Three- motor.	Four- motor.	Per cent of total.			
							(One- motor.	Two- motor.	Three- motor.	Four- motor.
United States.....	68,874	64,378	642	46,521	422	16,793	1.0	72.3	0.7	26.1
North Atlantic.....	36,466	33,664	191	26,272	179	7,022	0.6	78.0	0.5	20.9
South Atlantic.....	5,010	4,887	85	4,000	26	776	1.7	81.8	0.5	15.9
North Central.....	19,424	18,074	184	11,162	192	6,536	1.0	61.8	1.1	36.2
South Central.....	3,517	3,477	115	2,602	11	659	8.3	77.4	0.3	19.0
Western.....	4,657	4,276	67	2,395	14	1,800	1.6	56.0	0.3	42.1

The equipments for cars requiring two motors constituted 72.3 per cent of all in use and those for cars requiring four motors 26.1 per cent, the equipments for cars with one motor and three motors making together but 1.7 per cent of the total number. The Western division had the largest proportionate number of four-motor equipped cars, and when all equipments are reduced to a one-motor basis it is evident that the average number of motors per equipment was highest for that division, being 2.8. The averages for the other divisions were as follows: North Central, 2.7; North Atlantic, 2.4; and South Central and South Atlantic, 2.3 each. The average for the United States was 2.5. The largest proportionate number of heavy motor cars was reported from Minnesota, 637 out of 736 motor equipments, or 86.5 per cent, being four-motor; other states with large proportions of such

cars were Washington, with 64.3 per cent; Missouri, with 60.2 per cent; Wisconsin, with 57 per cent; and Rhode Island, with 50.6 per cent. The foregoing are the only states in which four-motor equipments outnumbered all other types.

Locomotives.—The decrease in the number of locomotives reported in 1907 as compared with 1902 is due to the electrification of the elevated lines of New York City. Of the 422 steam locomotives reported in 1902, 413 were in use on the Manhattan Elevated and the Brooklyn Rapid Transit system. In 1902 the returns concerning steam locomotives in use in connection with street and electric railways were not, however, complete, as in a few cases the locomotive equipment for steam trackage was not reported. The following table shows, by states and geographic divisions, the locomotives reported for the two censuses:

TABLE 42.—Electric and steam locomotives, respectively, by states and geographic divisions: 1907 and 1902.

STATE OR TERRITORY.	NUMBER OF LOCOMOTIVES.					
	Total.		Electric.		Steam.	
	1907	1902	1907	1902	1907	1902
United States.....	200	425	117	3	92	422
North Atlantic division.....	50	416	34		25	416
Maine.....	5		8			
New Hampshire.....	1	1	1			1
Massachusetts.....	3		2		1	
Rhode Island.....	4		4			
New York.....	29	414	12		17	414
New Jersey.....	4	1	4			1
Pennsylvania.....	10		3		7	
South Atlantic division.....	11	2	11	1	6	1
District of Columbia.....	1		1			
Virginia.....	6		1		5	
North Carolina.....	2	2	1	1	1	1
North Central division.....	67	4	31	2	36	2
Ohio.....	11		6		5	
Indiana.....	11		2		9	
Illinois.....	17	2	10	2	7	
Michigan.....	4		2		2	
Wisconsin.....	7		1		6	
Minnesota.....	1		1			
Iowa.....	10	2	5		5	2
Missouri.....	3		3			
Nebraska.....	1				1	
Kansas.....	2		1		1	
South Central division.....	6		3		3	
Alabama.....	3				3	
Mississippi.....	2		2			
Oklahoma.....	1		1			
Western division.....	68	3	46		22	3
Colorado.....	3		1		2	
Utah.....	4		3		1	
Washington.....	26		19		7	
Oregon.....	10	1	7		3	1
California.....	23	2	15		8	2
Idaho.....	1				1	
New Mexico.....	1		1			

The largest number of electric locomotives was reported as in use in the Western states, the number of such locomotives being particularly large in the Pacific

Coast states. The Spokane and Inland Empire Railroad Company of Washington reported the largest number, 15 locomotives—9 electric and 6 steam.

Fenders and brakes.—With the exception of data concerning the protected steam-railroad crossings, the only information concerning safety appliances reported to the Census Bureau relates to the number of cars equipped with fenders and brakes. The statistics concerning fenders are presented in Table 43.

TABLE 43.—Equipment of cars—Fenders, by geographic divisions: 1907 and 1902.

DIVISION.	TOTAL NUMBER OF CARS.		CARS EQUIPPED WITH FENDERS.				PERCENT OF INCREASE.	
	1907	1902	Number.		Per cent of total number of cars.		Total number of cars.	Cars equipped with fenders.
			1907	1902	1907	1902		
United States.....	62,641	66,784	28,925	43,273	70.4	64.8	25.2	36.2
North Atlantic.....	40,658	34,763	30,535	25,734	75.1	68.3	17.0	28.6
South Atlantic.....	6,002	4,604	4,245	3,109	70.7	69.5	30.4	32.7
North Central.....	25,582	20,712	17,278	12,310	67.5	59.4	23.5	60.8
South Central.....	4,177	3,249	2,659	1,678	63.7	51.6	28.6	58.5
Western.....	7,223	3,456	4,209	2,348	58.3	67.9	100.0	79.3

Although as a rule only motor cars are equipped with fenders, yet in many cases trailers also are thus protected, and the table therefore shows the ratios of fender equipments to all cars. Pilots and wheel and truck guards, when reported, have been tabulated as fenders, their inclusion in specific cases being shown by notes in Table 185.

Table 44 presents the statistics for brakes and the proportions the several classes of hand, air, and other mechanically braked cars formed of the total number of cars for 1907 and 1902.

TABLE 44.—EQUIPMENT OF CARS—BRAKES, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	TOTAL NUMBER OF CARS.		NUMBER OF CARS WITH BRAKES.												PER CENT OF INCREASE.				
			Hand brakes.		Air brakes.		Other mechanical brakes.		Per cent of total number of cars.						Total num- ber of cars.	Number of cars with brakes.			
									Hand brakes.		Air brakes.		Other mechanical brakes.			Hand brakes.	Air brakes.	Other mechani- cal brakes.	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907				1902
United States.....	63,641	66,784	78,384	63,690	31,684	7,905	3,803	5,146	93.7	95.4	37.0	11.8	4.5	7.7	25.2	23.1	190.2	165.9	26.1
North Atlantic.....	40,658	34,763	37,634	34,300	13,075	4,430	1,161	2,026	92.4	98.7	32.3	13.9	2.9	5.8	17.0	9.8	170.2	165.9	42.7
South Atlantic.....	6,002	4,604	5,790	4,335	1,120	164	1,104	209	98.5	94.2	19.7	3.8	18.4	5.8	20.4	23.6	592.0	170.4	170.4
North Central.....	25,582	20,712	24,557	18,457	12,164	7,999	1,987	98.0	89.1	47.5	12.0	2.6	9.6	33.1	358.9	165.9	165.9	165.9	165.9
South Central.....	4,177	3,249	3,745	3,197	991	117	1	24	89.4	98.4	23.7	3.6	(7)	0.7	28.6	17.2	747.0	165.8	165.8
Western.....	7,222	3,456	6,627	3,401	4,334	297	880	842	91.8	98.4	60.0	8.6	11.9	24.4	109.0	94.9	1,359.3	165.8	2.1

* Decrease.

* Less than one-tenth of 1 per cent.

The large increase in the use of air brakes in 1907 as compared with 1902 is a marked feature of the statistics, 37.9 per cent of all cars being equipped with air brakes in 1907 compared with 11.8 per cent in 1902. This increase is probably due to the use of larger cars. The state of New York had the largest number of cars equipped with air brakes in 1907, the number being

5,536 and forming 35 per cent of the total number of cars reported for the state as compared with 2,070, or 14.7 per cent, in 1902. The next largest number of air brakes was in Illinois, where 4,492, or 48.1 per cent of all cars, were equipped with such brakes in 1907 as compared with 1,529, or 19.7 per cent, in 1902. The states showing the highest ratios of cars equipped with

air brakes to total cars are Minnesota, with 84.2 per cent (635 cars) of the total cars in 1907 as compared with 5.4 per cent (58 cars) in 1902; Washington, with 77.2 per cent (1,360 cars) in 1907 as compared with 9.5 per cent (41 cars) in 1902; Missouri, with 68.6 per cent (1,754 cars) in 1907 as compared with 4 per cent (100 cars) in 1902; and Michigan, with 65.7 per cent (1,566 cars) in 1907 as compared with 10.4 per cent (183 cars) in 1902.

The brakes reported as "Other mechanical" brakes undoubtedly include many belonging in the hand-

brake class. The returns in some cases are incomplete and do not permit of a satisfactory classification. The group included 411 electric or magnetic brakes for 1907 as compared with 1,055 for 1902, and 1,999 track brakes in 1907 as compared with 1,495 in 1902.

Lighting and heating of cars.—In addition to its use as a motive power, electricity has furnished an ideal method of lighting and heating cars, and is rapidly displacing stoves and other heating systems on all lines having electric power. The statistics for this phase of the industry are given in Table 45.

TABLE 45.—EQUIPMENT OF CARS—LIGHTING, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	TOTAL NUMBER OF CARS.		NUMBER OF CARS LIGHTED.										PER CENT OF INCREASE.			
			Total.		By electricity.		By oil, etc.		Per cent of total number of cars lighted.				Total number of cars.	Number of cars lighted.		
									By electricity.		By oil, etc.			Total.	By elec- tricity.	By oil, etc.
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902						
United States.....	83,641	66,784	73,577	62,369	72,902	55,703	885	6,666	98.8	80.3	1.2	10.7	25.2	18.5	31.0	186.7
North Atlantic.....	40,658	34,763	37,387	32,661	37,022	30,083	365	2,578	99.0	92.1	1.0	7.9	17.0	14.5	23.1	185.8
South Atlantic.....	6,002	4,604	5,700	4,436	5,672	4,400	28	30	99.5	90.2	0.5	0.8	30.4	28.5	28.9	22.2
North Central.....	25,582	20,712	22,074	19,216	21,785	16,114	289	3,102	98.7	83.9	1.3	16.1	23.5	14.9	35.2	190.7
South Central.....	4,177	3,249	3,902	3,036	3,938	2,955	24	81	99.4	97.3	0.6	2.7	28.6	30.5	33.3	170.4
Western.....	7,222	3,456	4,754	3,020	4,575	2,151	179	860	96.2	71.2	3.8	28.8	100.0	57.4	112.7	179.4

¹ Decrease.

Electric lighting is now in use on practically all lighted cars of electric roads. The 1.2 per cent of cars lighted by oil, etc., in 1907 represents substantially the lighted cars of animal, cable, steam, and gasoline-motor lines, as but 47 of the cars lighted by oil, etc., were reported by roads having electric power exclusively. In 1907 the lighted cars comprised 88.3 per cent of the total number compared with 93.4 per cent of the total number in 1902. The decrease in the proportionate number of lighted cars is due to the increase in number and proportion of freight cars. The South

Atlantic division had the largest proportionate number of lighted cars at both censuses—95 per cent in 1907 and 96.4 per cent in 1902, and the Western division the smallest proportionate number—65.8 per cent in 1907 and 87.4 in 1902. The large number of non-lighted cars in the Western division is explained by the fact that a large number of freight cars without lighting equipment were used in that division.

Table 46 presents comparative statistics with respect to the heating of cars.

TABLE 46.—EQUIPMENT OF CARS—HEATING, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	NUMBER OF CARS.						NUMBER OF CARS HEATED.								PER CENT CARS HEATED FORM OF OTHER THAN OPEN CARS.		PER CENT OF INCREASE.					
	Total.		Other than open.		Open.		Total.		By electricity.		By stoves, etc.		Per cent of total number of cars heated.				Cars heated.					
															Other than open cars.	Total.	By electricity.	By stoves, etc.				
	By electricity.	By stoves, etc.																				
			1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902		
United States.....	83,641	66,784	61,104	42,526	22,537	24,259	43,906	30,159	31,379	19,023	12,627	11,138	71.5	63.1	28.5	36.9	71.9	70.9	43.7	45.6	65.0	12.5
North Atlantic.....	40,658	34,763	27,409	21,290	13,149	13,503	22,749	16,654	19,668	12,181	3,041	4,473	86.6	73.1	13.5	26.9	82.8	78.3	29.2	36.6	61.5	131.1
South Atlantic.....	6,002	4,604	3,924	2,993	2,078	2,011	2,192	1,341	2,115	1,113	77	28	96.5	97.5	3.5	2.5	53.9	44.0	51.3	92.1	90.0	175.0
North Central.....	25,582	20,712	19,187	13,454	5,665	7,258	16,234	11,013	7,006	4,524	9,229	6,440	43.2	41.1	56.8	58.9	81.6	81.9	47.9	47.4	54.8	42.2
South Central.....	4,177	3,249	3,083	2,371	1,094	878	1,449	812	1,399	731	80	81	94.5	90.0	5.5	10.0	47.0	34.2	30.0	78.4	87.3	11.2
Western.....	7,222	3,456	6,731	2,847	491	609	1,282	539	1,222	472	00	67	95.3	87.6	4.7	12.4	19.0	18.9	150.4	137.8	158.9	110.4

¹ Decrease.

In 1907, 52.5 per cent of all cars were equipped with heating apparatus as compared with 45.2 per cent of all cars in 1902. Consideration of heating facilities is preferably, however, confined to closed cars, and the percentages given in the above table are on this basis.

An examination of the returns for the several companies disclosed the fact that a considerable number of open passenger cars were reported as equipped with heating apparatus. This can be explained only on the assumption that a considerable number of these

open cars are convertible and that the heating apparatus for use when converted into a closed car was reported. The group of cars "Other than open" includes in addition to closed passenger cars all combination cars—closed and open, and passenger and express—all parlor, sleeping, dining, private, express, freight, mail, and work cars, as well as snowplows, sweepers, and sprinklers. In 1907 there were 61,104 cars of this group as compared with 42,525 in 1902, an increase of 43.7 per cent. Of these cars, 71.9 per cent had means for heating in 1907 and 70.9 in 1902. The North Atlantic division had the largest proportion of heated cars among the cars other than open cars in 1907, 82.8 per cent, as compared with 78.3 per cent in 1902, followed by the North Central division, with 81.6 per cent in 1907 as compared with 81.9 in 1902. The Western division, partly on account of the large number of express or freight cars that were not heated, had the smallest percentage of heated cars at both censuses, although it had the largest proportionate increase in the number of closed cars and in the number of heated cars.

The equipments in use for heating by means other than electric current comprise chiefly stoves and hot-water systems. At the census of 1907 the inquiry as to the kind of heating system in use was not in all cases specifically answered, but the details, so far as reported, are given in the following table:

TABLE 47.—Number of cars heated by stoves and heating systems other than electric: 1907.

DIVISION.	NUMBER.				
	Total.	By stoves.	By hot-water systems.	By hot-water systems of stoves.	All other.
United States.....	12,527	5,442	3,769	1,409	1,907
North Atlantic.....	3,481	1,949	1,005	.....	127
South Atlantic.....	77	9	41	.....	27
North Central.....	9,229	3,380	2,713	1,400	1,727
South Central.....	80	58	8	.....	14
Western.....	60	46	2	.....	12

¹ Includes 2% steam systems and 1,979 kind not reported.

One company in Kansas, which used gas-electric motor cars, heated the cars with the waste heat from the gas engines by means of a hot-water system.

Car houses.—There were 1,764 separate structures for the housing of cars reported in 1907 as compared with 1,634 in 1902, an increase of 130 buildings, or 8 per cent. While the increase in number of buildings exceeded by 2 the increase in the number of operating companies, the relative increase is much less than the relative increase in the total number of cars. That

there was probably both a consolidation of separate structures between the censuses and an enlargement of existing ones is suggested by the fact that in 1902 the average number of cars per structure was but 41, while in 1907 it had increased to 47, and, on the other hand, that the number of car houses per operating company in 1902 was 2 and in 1907 slightly less than 1.9.

Car houses were not reported by 114 of the 945 operating companies in 1907 nor by 83 of the 817 in 1902. Several companies expressly stated that no shelter for cars had been constructed, while others reported only a combination car and power house, in which cases the structure was classified and tabulated as a power house rather than as a car barn. There were also a number of companies that either by a temporary or a permanent arrangement used the car houses of other companies.

Telephone line exclusively for operation of railways.—There were 406 companies in 1907 and 257 in 1902 that reported the ownership or operation of telephone lines as an aid to their regular car-dispatching system, or in establishing communication with conductors at points along the line and between different offices and sections of the system. In 1907 there were 14,546 miles of telephone line used exclusively for this purpose as compared with 5,868 miles in 1902, an increase of 8,678 miles, or 147.9 per cent. All of this line is exclusive of any line of local telephone exchanges that is also utilized by the companies. The 3 states that had the greatest telephone mileage for railway operation in 1907 were Ohio, with 2,856 miles; Indiana, with 1,773 miles; and Massachusetts, with 1,505 miles. The following companies reported 200 miles or over of telephone line in use: Pacific Electric Railway Company and Los Angeles Interurban Railway Company, of California; Indiana Union Traction Company and Terre Haute, Indianapolis and Eastern Traction Company, of Indiana; Old Colony Street Railway Company and Boston and Northern Street Railway Company, of Massachusetts; Ohio Electric Railway Company and Lake Shore Electric Railway Company, of Ohio; and Milwaukee Electric Railway and Light Company, of Wisconsin.

TRACK AND CARS BY GROUPS OF COMPANIES.

Track and cars of companies, classified according to income from railway operations.—The statistics pertaining to track and cars for all operating companies, classified according to their income from railway operations, are given in the following table for 1907 and 1902:

TABLE 48.—TRACK AND CARS OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of operating companies.....	1907	945	77	50	82	183	533	8.1	5.3	8.7	19.4	58.5
	1902	817	44	28	57	116	572	5.4	3.4	7.0	14.2	70.0
Miles of track, total.....	1907	34,403.56	15,564.34	4,346.24	4,008.76	4,979.68	5,463.54	45.2	12.7	11.7	14.5	15.9
	1902	22,576.99	8,414.31	2,127.29	2,762.59	3,478.97	5,773.83	37.3	9.4	12.3	15.4	23.8
Overhead trolley.....	1907	32,501.71	14,487.11	4,249.18	3,720.43	4,764.32	5,280.67	44.6	13.1	11.4	14.7	16.2
	1902	21,290.09	7,645.06	2,024.02	2,719.89	3,327.78	5,572.74	35.9	9.5	12.8	15.6	26.2
All other electric.....	1907	1,557.98	906.99	119.98	290.33	173.93	67.85	58.2	7.7	18.6	11.2	4.4
	1902	611.44	385.27	54.91	16.11	121.97	33.18	63.0	9.0	2.6	19.9	5.4
All other kinds.....	1907	343.87	170.34	17.08	41.43	115.02	49.5	5.0	.....	.....	12.0	33.4
	1902	675.46	383.38	48.36	46.50	29.22	167.91	58.7	7.2	6.9	4.3	24.9
Owned.....	1907	27,480.65	10,119.09	3,763.91	3,657.93	4,601.40	5,338.32	36.8	13.7	13.3	16.7	19.4
	1902	19,025.85	5,543.67	1,926.34	2,562.53	3,344.96	5,668.35	29.1	10.1	13.4	17.6	22.8
Leased.....	1907	6,922.91	5,445.25	622.33	351.83	378.28	125.22	78.7	9.0	5.1	5.5	1.8
	1902	3,551.14	2,870.04	290.95	280.06	134.01	105.48	80.8	5.7	6.8	3.8	3.0
Track operated under trackage rights.....	1907	998.31	496.93	49.26	102.26	162.27	197.59	48.8	4.9	10.2	16.3	19.8
	1902	500.92	68.04	53.11	116.56	141.87	181.34	12.1	9.5	20.8	25.3	32.3
Track on private right of way, total.....	1907	10,971.64	3,167.09	1,611.63	1,724.62	2,105.32	2,362.39	29.9	14.7	15.7	19.2	21.5
	1902	3,802.07	668.93	216.61	606.41	772.89	1,537.23	17.6	5.7	16.0	24.4	40.4
Owned by company.....	1907	10,230.57	3,069.23	1,575.23	1,665.56	1,804.00	2,096.55	30.2	15.4	16.3	17.6	20.5
	1902	3,424.95	511.46	205.45	581.71	686.98	1,286.96	15.8	6.0	17.0	20.4	34.4
Not owned by company.....	1907	741.27	78.46	36.40	59.06	301.32	265.83	10.6	4.9	8.0	40.7	35.9
	1902	377.11	127.47	10.76	24.70	75.91	135.27	33.8	2.9	6.5	20.1	36.7
Number of cars, total.....	1907	83,641	55,692	8,194	6,129	7,304	6,322	66.6	9.8	7.3	8.7	7.6
	1902	69,784	41,702	5,332	5,470	5,936	5,324	62.4	8.0	8.2	8.9	12.5
Motor.....	1907	68,874	48,506	5,758	4,596	5,344	4,770	70.4	8.4	6.7	7.6	6.9
	1902	50,099	31,943	4,096	4,121	4,661	4,000	63.0	8.0	8.1	9.2	11.7
Trailer.....	1907	14,767	7,186	2,436	1,533	2,060	1,552	48.7	16.5	10.4	14.0	10.5
	1902	16,685	9,759	1,266	1,349	1,295	2,316	60.7	7.9	8.4	8.1	15.0
Passenger cars, number.....	1907	70,016	49,004	6,160	4,515	5,318	5,019	70.0	8.8	6.4	7.6	7.2
	1902	60,290	38,543	4,856	4,789	5,279	6,823	63.9	8.1	7.9	8.8	11.3

The changes in the proportions that the several classes formed of the respective totals show the movement toward larger companies during the five-year period between 1902 and 1907. In all of the leading items—miles of track, track owned, track on private right of way, and car equipment—the classes of the larger companies, Classes A and B, made large gains, and the smaller company classes show, in the main, corresponding decreases. The general proportionate increase is particularly noticeable in the companies of Class B, those having an income from railway operations of from \$500,000 but less than \$1,000,000, as indicated by Table 49, which gives the percentages of increase of the leading items for the several classes.

A comparison of the car equipment with the miles of track operated shows a proportionate decrease in the former, due in part to the use of larger cars and in part to the fact that track extensions are generally into districts of relatively low traffic density. Thus in 1907 the average number of cars per mile of track, which for all companies was 2.4, ranged from 3.6 cars per mile of track for the companies of Class A down to

1.2 for those of Class E, as compared with an average in 1902 of 3 cars for all companies and a range from 5 cars for companies of Class A to 1.4 cars for those of Class E. It will be noted that the number of trailers in use decreased for all companies and for Classes A and E, the classes with the largest and the smallest incomes, while the intermediate classes show gains, the largest being in Class B. This is accounted for largely by the growth in express and freight business of companies belonging to these middle classes.

TABLE 49.—Per cent of increase of track and cars of companies, classified according to income from railway operations: 1902 to 1907.

	PER CENT OF INCREASE.					
	Total.	A	B	C	D	E
Miles of track, total.....	52.4	85.0	106.2	44.1	43.1	15.4
Owned.....	44.4	82.5	95.4	43.9	37.0	15.8
Leased.....	94.9	80.7	206.7	100.0	100.0	18.7
Track on private right of way.....	188.6	373.5	644.0	184.4	172.4	53.7
Number of cars, total.....	25.2	33.5	53.7	12.0	22.6	124.1
Motor.....	35.8	51.9	41.6	11.5	12.5	119.3
Trailer.....	18.2	126.4	92.4	13.6	30.1	135.8
Passenger cars.....	16.1	27.1	26.9	15.7	.7	120.4

¹ Decrease.

Track and cars of companies, classified according to kind of system and character of service.—A similar presentation of the statistics relating to track and cars is

given in Table 50 for 1907, for companies, classified by kind of system and by character of service.

TABLE 50.—TRACK AND CARS OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of operating companies.....	945	6	939	50	100	795
Miles of track, total.....	34,403.56	420.40	33,983.16	5,567.11	560.69	28,275.76
Overhead trolley.....	32,591.71	25.89	32,475.82	5,068.65	555.47	26,877.39
All other electric.....	1,557.98	204.51	1,163.47	436.46	5.22	1,096.30
All other kinds.....	343.87		343.87	42.00		301.87
Owned.....	27,460.65	201.35	27,169.30	3,949.07	560.69	22,970.89
Leased.....	6,922.91	129.05	6,793.86	1,618.04		5,304.87
Track on private right of way, total.....	10,971.84	118.78	10,853.06	3,583.16	193.33	7,186.35
Owned by company.....	10,230.57	116.31	10,114.26	3,447.09	181.22	6,802.26
Not owned by company.....	741.27	2.47	738.80	136.07	12.11	503.09
Number of cars, total.....	83,641	4,453	79,188	5,259	619	77,764
Motor.....	68,874	2,433	66,441	3,429	484	64,961
Trailer.....	14,767	2,020	12,747	1,830	134	12,803
Passenger cars, number.....	70,016	4,320	65,696	3,246	491	66,279

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

The electric elevated and subway railways operate in districts of the highest traffic density. Naturally the items for this small group of railways do not form large percentages of the totals of the several items relating to track, except in the case of track designated as "All other electric," which is track of the third-rail system used on the strictly elevated and subway lines. The car equipment of the roads of this group is necessarily large, averaging 10.6 cars per mile of track in 1907, or 29.7 cars per mile of line. The total number represents a line of cars approximately 40 miles long, or more than one-fourth of the length of the roads.

The 50 selected interurban roads operated a relatively large amount of leased track, the proportion that such track formed of all leased track being 23.4

per cent, while the ratio of all their trackage to all track reported in 1907 was only 16.2 per cent. This group had a still larger proportionate part, 32.7 per cent, of the track on private right of way.

The car equipment per mile of track operated by these interurban lines is naturally low, as compared with roads operating solely in urban districts; in 1907 the average number of cars per mile of track was only 0.9 for the interurban lines, as against 2.4 for all companies, and 1.1 for the group of 100 small urban roads. The last group, though relatively large in absolute number of companies, had small ratios of track and car equipment. This group comprises roads that were entirely electric and that owned all the track on which their cars ran.

CHAPTER V.

TRAFFIC.

The statistics showing the traffic of each railway company for the year 1907 are shown in detail in Table 187. These, as well as the statistics for all other phases of the industry, are of greatest interest when compared with similar data for some previous year. It is impracticable, however, to make comparisons in detail for each company in the United States, and consequently the figures for the last two censuses will be shown only for groups of companies and for large representative systems.

The state totals relating to passengers, car miles, car hours, and accidents represent the aggregate for

the companies credited to the respective states, and not necessarily the exact statistics of traffic within the several state lines, since a number of companies operated track in more than one state. Table 183 shows the state location of trackage for each company and the net trackage in each state.

Statistics for the more important items of traffic as reported in 1907 and 1902 are given in Table 51 for the states and geographic divisions. The per cent distribution and percentages of increase for the geographic division totals appear in Table 52.

TABLE 51.—PASSENGERS AND CAR MILEAGE, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	NUMBER OF PASSENGERS.					Transfer points.	Fare passengers per mile of track.	CAR MILEAGE.			Fare passengers per car mile.
		Total.	Fare.	Transfer.	Free.	Total.			Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		
United States.....	1907	9,533,080,766	17,441,114,508	1,995,658,101	96,308,157	7,376	1216,522	1,617,731,300	1,583,831,199	33,900,101	4.70	
	1902	5,830,615,296	14,774,211,904	1,062,453,392	(¹)	4,455	1212,217	1,144,430,466	1,120,101,944	24,328,522	4.26	
North Atlantic division.....	1907	4,648,001,271	3,714,134,088	800,771,941	34,189,642	3,480	271,025	747,922,898	728,283,124	9,629,772	5.08	
	1902	3,137,080,901	2,618,528,979	518,567,922	(¹)	1,920	257,640	565,496,857	545,481,224	20,005,633	4.80	
Maine.....	1907	40,857,875	26,730,146	3,787,491	139,838	27	86,615	9,074,009	8,802,670	271,399	4.17	
	1902	27,506,562	25,465,164	2,011,418		14	70,897	6,815,671	6,389,750	425,921	3.99	
New Hampshire.....	1907	22,920,103	20,086,680	1,704,130	229,274	2	81,290	4,776,654	4,650,629	120,025	4.21	
	1902	12,234,120	11,304,908	929,212		5	67,432	3,214,870	3,214,611	268	3.52	
Vermont.....	1907	7,400,680	7,103,082	357,598		7	57,140	1,810,833	1,771,967	38,906	4.01	
	1902	4,561,323	4,274,906	286,717		6	53,070	1,412,528	1,288,945	123,663	3.32	
Massachusetts.....	1907	814,586,310	597,469,848	213,574,736	3,541,736	378	207,635	118,671,540	117,108,135	1,503,414	5.10	
	1902	605,258,939	461,745,615	143,513,324		250	182,822	101,373,975	100,115,307	1,258,668	4.61	
Rhode Island.....	1907	104,273,001	91,171,989	11,869,102	1,511,910	131	217,118	15,737,978	15,325,805	402,173	5.95	
	1902	62,304,163	62,279,105	115,000		3	180,856	12,296,893	12,173,911	122,982	5.12	
Connecticut.....	1907	146,150,623	122,553,772	23,457,233	148,618	135	156,880	26,658,962	25,577,625	1,081,357	4.79	
	1902	93,358,167	77,447,101	15,911,086		96	134,194	20,186,600	19,726,238	459,457	3.93	
New York.....	1907	2,123,242,239	1,657,686,801	455,906,610	9,648,828	1,912	426,718	336,783,703	332,506,950	4,276,753	4.99	
	1902	1,424,915,703	1,144,401,509	280,624,194		1,157	407,305	251,312,176	234,279,043	17,033,133	4.89	
New Jersey.....	1907	345,302,590	280,090,070	69,329,479	6,774,050	432	203,229	55,658,531	55,029,951	628,580	4.89	
	1902	228,082,103	188,976,989	39,108,204		118	219,414	36,372,346	35,335,733	10,613	5.35	
Pennsylvania.....	1907	1,044,488,841	912,233,290	120,065,163	12,190,388	436	251,920	178,750,577	177,443,372	1,307,205	5.14	
	1902	678,785,590	642,513,812	36,271,787		271	238,963	133,501,669	132,935,671	566,028	4.83	
South Atlantic division.....	1907	622,578,803	497,981,528	125,024,241	9,573,124	802	212,699	106,825,575	104,955,444	870,131	4.65	
	1902	373,902,496	297,198,541	78,703,965	(¹)	468	179,258	80,327,931	79,409,639	918,292	3.74	
Delaware.....	1907	19,282,805	15,723,757	3,227,211	331,837	25	183,909	4,013,211	3,991,161	22,050	3.94	
	1902	11,440,702	9,856,559	1,484,143		26	116,301	3,006,796	2,990,236	37,560	3.35	
Maryland.....	1907	211,402,192	132,268,326	55,614,404	3,510,462	196	283,967	29,351,027	28,963,767	387,260	5.26	
	1902	135,625,650	90,949,552	35,636,098		144	228,370	24,832,682	24,238,490	594,172	4.13	
District of Columbia.....	1907	130,490,524	91,569,056	38,439,924	481,544	68	530,190	19,345,292	19,377,792	7,500	4.73	
	1902	90,203,041	66,162,321	24,041,620		69	408,465	16,139,141	16,062,204	86,937	4.11	
Virginia.....	1907	88,614,990	77,300,268	9,531,818	1,782,913	105	149,940	18,006,361	17,980,718	125,633	4.30	
	1902	52,369,902	44,278,661	8,094,241		113	127,562	12,335,072	12,304,104	30,968	3.60	
West Virginia.....	1907	44,616,042	42,749,821	1,863,122	683,090	25	161,071	8,296,777	8,247,777	49,000	5.18	
	1902	22,183,704	21,706,870	478,924		3	155,049	6,734,171	6,734,171		3.22	

¹ Fare passengers reported for 944 operating companies only, representing 24,306.51 miles of track operated.

² Fare passengers reported for 511 operating companies only, representing 22,406.85 miles of track operated.

³ Not reported separately.

STREET AND ELECTRIC RAILWAYS.

TABLE 51.—PASSENGERS AND CAR MILEAGE, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OR TERRITORY.	Census.	NUMBER OF PASSENGERS.				Transfer points.	Fare passengers per mile of track.	CAR MILEAGE.			Fare passengers per car mile.
		Total.	Fare.	Transfer.	Free.			Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	
South Atlantic division—Continued.											
North Carolina.....	1907	15,858,622	14,086,151	1,652,848	119,623	13	132,339	3,068,204	3,809,645	58,559	3.70
	1902	6,783,686	5,337,367	1,446,328		8	115,228	1,676,978	1,629,299	47,679	3.28
South Carolina.....	1907	18,277,936	15,694,635	2,104,371	478,930	30	119,569	3,825,479	3,805,370	20,108	4.12
	1902	10,748,724	9,066,818	1,661,906		27	117,652	2,520,231	2,502,944	17,387	3.62
Georgia.....	1907	71,820,439	59,700,459	10,154,536	1,965,424	108	170,972	14,000,261	14,488,830	111,421	4.12
	1902	37,004,361	32,463,851	4,540,510		63	108,076	10,733,429	10,690,826	42,603	3.04
Florida.....	1907	22,215,334	18,869,035	3,116,987	210,292	32	159,728	4,288,974	4,310,384	78,590	4.28
	1902	9,541,727	8,249,542	1,292,185		13	133,596	2,349,449	2,258,463	90,986	3.65
North Central division.....	1907	2,970,482,091	2,223,525,349	715,310,251	31,646,491	2,117	173,316	531,048,946	518,928,111	12,120,835	4.28
	1902	1,707,542,180	1,344,000,951	363,541,229	(1)	1,586	173,356	366,847,433	364,127,215	2,720,218	3.69
Ohio.....	1907	608,589,567	480,843,805	122,195,401	5,560,361	286	127,793	124,480,321	120,596,365	3,883,956	3.99
	1902	356,788,221	285,434,579	71,353,642		189	121,284	83,996,438	83,135,144	861,294	3.43
Indiana.....	1907	169,110,331	137,547,183	27,277,769	4,285,379	95	71,180	41,369,611	39,504,604	1,865,007	3.46
	1902	80,974,221	66,255,767	14,718,454		62	102,458	21,096,357	20,931,786	163,569	3.17
Illinois.....	1907	993,589,254	703,493,137	283,335,431	6,760,686	838	254,919	170,332,063	166,646,747	3,685,316	4.22
	1902	590,598,228	463,190,986	127,407,242		592	267,035	121,142,474	120,635,074	507,400	3.63
Michigan.....	1907	237,073,769	183,239,012	47,410,475	6,424,282	142	143,713	45,836,200	44,388,125	1,448,075	4.13
	1902	140,440,783	113,916,992	26,523,791		116	111,376	33,046,639	32,333,464	713,375	3.52
Wisconsin.....	1907	132,339,221	102,771,360	28,998,509	669,352	92	173,997	21,799,284	21,722,884	76,400	4.73
	1902	78,282,492	62,537,300	15,745,192		89	150,150	15,609,684	15,528,124	81,760	4.03
Minnesota.....	1907	175,451,502	136,122,311	39,158,456	170,735	104	297,783	24,370,694	24,370,694		5.69
	1902	90,098,793	73,238,012	17,462,181		77	216,567	15,092,887	15,092,887		4.67
Iowa.....	1907	73,611,748	61,439,960	11,114,440	1,057,448	69	96,024	17,128,619	16,647,266	481,353	3.69
	1902	44,076,534	38,550,549	5,516,945		61	101,942	11,809,354	11,688,888	120,366	3.30
Missouri.....	1907	492,716,613	346,361,741	140,454,246	5,900,526	403	375,798	69,137,691	68,615,923	522,668	5.05
	1902	280,092,923	211,808,737	78,284,086		342	279,291	55,792,991	55,326,272	436,719	3.85
North Dakota.....	1907	2,105,860	1,471,994	233,866		3	116,345	380,218	380,218		4.81
South Dakota.....	1907	125,515	125,515				25,103	48,600	48,600		2.56
Nebraska.....	1907	61,731,906	49,323,651	11,975,339	433,416	60	225,497	10,356,712	10,248,974	107,738	4.81
	1902	27,619,504	22,228,825	5,391,179		40	195,569	6,273,945	6,238,210	35,735	3.56
Kansas.....	1907	24,027,006	20,346,380	3,256,319	384,306	25	81,565	5,799,633	5,748,711	50,922	3.55
	1902	7,970,581	6,832,094	1,138,517		18	61,806	2,417,364	2,417,364		2.63
South Central division.....	1907	504,100,244	414,225,636	80,316,016	9,568,602	563	217,337	95,286,691	94,042,289	1,244,402	4.40
	1902	234,315,915	210,103,891	24,212,054	(1)	114	158,875	43,236,659	43,043,804	192,854	3.33
Kentucky.....	1907	107,798,494	85,858,931	20,545,140	1,394,423	42	220,643	18,750,421	18,345,627	404,794	4.68
	1902	61,683,120	50,293,952	11,389,278		21	198,253	15,477,507	15,451,572	25,985	3.04
Tennessee.....	1907	90,268,212	73,746,986	22,629,967	2,691,359	42	247,889	15,928,762	15,684,612	44,150	4.64
	1902	45,476,511	35,697,835	9,778,676		40	140,432	10,128,603	10,134,919	2,684	3.52
Alabama.....	1907	62,923,421	52,197,482	8,442,346	1,883,593	63	178,967	11,785,298	11,554,680	230,618	4.52
	1902	23,741,963	22,748,671	993,092		12	111,122	6,152,896	6,043,479	109,417	3.76
Mississippi.....	1907	10,312,012	9,054,096	1,068,269	190,537	19	105,140	2,799,763	2,792,923	6,840	3.25
	1902	3,127,940	3,101,015	26,925		3	122,570	923,990	923,990		3.36
Louisiana.....	1907	94,785,724	85,193,632	8,045,350	1,546,742	28	357,178	20,596,652	20,174,162	332,490	4.22
	1902	60,285,120	55,343,843	4,941,277		15	278,782	18,394,899	18,504,899		2.96
Arkansas.....	1907	20,916,329	17,145,887	3,078,670	692,262	21	196,194	4,331,294	4,329,034	2,260	3.96
	1902	7,535,549	6,890,479	955,080		11	131,682	2,144,778	2,144,196	580	3.21
Oklahoma.....	1907	11,069,973	9,502,472	1,563,932	23,569	21	94,608	2,479,202	2,460,668	18,534	3.96
Texas.....	1907	97,005,169	81,496,630	14,342,422	1,166,097	127	196,439	18,805,299	18,500,583	304,716	4.41
	1902	32,165,682	30,037,966	2,127,716		12	90,047	9,804,017	9,750,779	53,238	3.08
Western division.....	1907	787,828,267	601,247,317	175,235,652	11,345,294	804	165,406	137,547,192	127,612,231	9,934,961	4.71
	1902	381,757,804	304,379,572	77,378,232	(1)	209	190,225	68,581,567	68,040,062	491,525	4.47
Montana.....	1907	14,089,649	13,842,231	145,231	82,187	11	200,206	2,432,477	2,432,477		5.70
	1902	6,917,002	6,868,502	58,500		3	108,503	1,354,622	1,313,942	40,680	5.22
Idaho.....	1907	1,507,333	1,320,964	157,246	23,125	7	29,905	385,965	378,585	7,380	3.51
	1902	314,340	314,340				69,811	164,250	164,250		1.91
Colorado.....	1907	93,683,653	73,458,408	19,393,433	1,892,762	85	231,460	14,686,838	14,297,798	389,040	5.14
	1902	62,327,717	42,371,590	9,956,127		55	183,865	8,925,050	8,924,660	500	4.78
New Mexico.....	1907	1,074,598	1,029,048	27,300	18,250	1	101,860	249,030	248,450	600	4.14
	1902	73,000	73,000				34,752	61,320	61,320		1.19

1 Not reported separately.

2 No company reported in 1902.

3 One company failed to report traffic in 1902.

TABLE 51.—PASSENGERS AND CAR MILEAGE, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OF TERRITORY.	Census.	NUMBER OF PASSENGERS.				Transfer points.	Fare passengers per mile of track.	CAR MILEAGE.			Fare passengers per car mile.
		Total.	Fare.	Transfer.	Free.			Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	
Western division—Cont'd.											
Arizona.....	1907	2,058,861	1,901,861	128,000	29,000	7	61,849	918,054	918,054	.....	2.07
	1902	799,710	797,970	1,740	.....	2	46,665	306,600	306,600	.....	2.60
Utah.....	1907	26,430,993	21,105,491	5,055,402	270,040	25	172,233	4,540,085	4,453,308	86,987	4.74
	1902	13,799,819	11,493,501	2,306,316	.....	7	129,082	3,047,222	3,047,122	100	3.77
Nevada ¹	1907	661,025	620,000	31,025	10,000	2	86,713	250,000	250,000	.....	2.46
Washington.....	1907	142,496,091	110,505,620	29,951,906	2,037,415	112	144,504	24,264,214	22,943,472	1,620,742	4.82
	1902	42,533,743	41,544,228	989,515	.....	57	161,471	8,378,420	8,285,417	93,003	5.01
Oregon.....	1907	63,930,947	49,459,493	12,146,734	2,324,730	73	195,176	15,025,037	10,470,327	4,554,710	4.72
	1902	23,066,753	18,739,442	4,937,311	.....	20	137,041	4,781,106	4,719,356	61,750	3.97
California.....	1907	441,895,205	327,977,151	109,230,255	4,687,799	471	162,890	74,785,472	71,219,670	3,565,802	4.61
	1902	241,325,720	182,196,999	59,128,721	.....	225	219,753	41,512,788	41,217,496	295,292	4.42

¹ No company reported in 1902.

TABLE 52.—PER CENT DISTRIBUTION AND PER CENT OF INCREASE OF PASSENGERS AND CAR MILEAGE, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	PER CENT OF TOTAL.								PER CENT OF INCREASE.							
		Number of passengers.				Car mileage.				Number of passengers.				Car mileage.			
		Total.	Fare.	Trans-fer.	Free.	Trans-fer points.	Total.	Passen-ger cars.	Express, freight, mail, etc., cars.	Total.	Fare.	Trans-fer.	Trans-fer points.	Total.	Passen-ger cars.	Express, freight, mail, etc., cars.	
United States.....	1907	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	63.3	55.9	87.8	65.6	41.4	41.4	39.3	
	1902	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0								
North Atlantic.....	1907	48.8	49.9	45.1	35.5	47.3	46.2	46.6	29.4	48.2	41.8	73.5	81.8	32.3	33.3	31.9	
	1902	53.7	54.8	48.8	(1)	43.1	49.4	48.7	82.2								
South Atlantic.....	1907	6.5	6.6	6.3	9.9	5.2	6.5	6.6	2.6	65.6	64.2	38.9	29.2	31.7	32.2	15.2	
	1902	6.4	6.2	7.4	(1)	10.5	7.0	7.1	2.8								
North Central.....	1907	31.2	29.9	35.8	32.9	28.7	32.8	32.8	35.8	74.0	65.4	96.8	33.5	44.8	42.5	345.6	
	1902	28.2	28.2	34.2	(2)	35.6	32.1	32.5	11.2								
South Central.....	1907	5.3	5.6	4.0	9.9	4.9	5.9	5.9	4.0	115.1	97.2	231.7	218.4	50.8	49.2	507.1	
	1902	4.0	4.4	2.3	(1)	2.6	5.5	5.6	.8								
Western.....	1907	8.3	8.1	8.8	11.8	10.9	8.5	8.1	29.2	108.4	97.5	126.5	117.9	100.7	87.6	1,921.3	
	1902	6.5	6.4	7.3	(1)	8.3	6.0	6.1	2.0								

¹ Decrease.² Not reported separately.

Number of passengers.—It is probable that more interest centers around the number of passengers carried than around any other feature of the railway service. While the increases in the capital, miles of track, rolling stock, etc., show the development of the industry, no fact is so impressive as the great number of people carried on these railways during the year, and the constant increase in the traffic.

The total number of passengers in 1907 aggregated 9,533,080,766 as compared with 5,836,615,296 in 1902, the increase being 3,696,465,470, or 63.3 per cent. The statistics for 1907, however, include 96,308,157 free passengers. This class was not specifically reported in 1902, and if included in that year, probably figured under transfer passengers. The number of fare passengers is the basis used in this report for all deductions in regard to passenger traffic, since the transfer pas-

sengers as a rule represent a duplication and since the free passengers comprise a class of passengers which is nonrevenue producing. Although transfer passengers in some cases pay an additional charge for transfers, the returns do not permit of the segregation of passengers paying an extra fare per transfer. The per cent distribution by class of passengers in 1907 and in 1902 is shown in the following statement:

CLASS OF PASSENGERS.	PER CENT DISTRIBUTION.	
	1907	1902
Total.....	100.0	100.0
Fare.....	78.1	81.8
Transfer.....	20.9	18.2
Free.....	1.0	.....

The New York City Railway Company, of New York, reported the largest number (523,032,340) of all passengers carried in 1907, also the largest number (403,532,402) in 1902, when it was known as the Interurban Street Railroad Company. The Sulphur Rock Railway Company, of Arkansas, returned the smallest number (1,300) for 1907, and the Chicago General Electric Railway Company, of Illinois, the smallest number (72) for 1902. In comparing the number of passengers carried by companies, the changes due to consolidation, leasing, etc., must be taken into account, as the extent of a system owned or controlled by a company often shows radical change from year to year and from census to census.

When states are ranked with respect to the number of passengers carried, New York is first for 1907, with 2,123,242,239 passengers, or 22.3 per cent of the total for all companies; Pennsylvania second, with 1,044,488,841, or 11 per cent of the total; and Illinois third, with 993,589,254, or 10.4 per cent of the total; while for 1902 New York was first, with 1,424,915,703 passengers, or 24.4 per cent of the total for all companies; Pennsylvania second, with 678,785,599, or 11.6 per cent of the total; and Massachusetts third, with 605,258,939, or 10.4 per cent of the total.

The relative increase was largest in the South Central division, followed by the Western, North Central, South Atlantic, and North Atlantic divisions. The proportion of the total number decreased for the North Atlantic division and increased for each of the other divisions.

Fare passengers.—This class of passengers was reported by all of the 945 operating companies in 1907, except the 1 exclusively freight road in Illinois, which had 15 miles of track. Of the 817 companies in 1902, 6 with 80.14 miles of track did not report fare passengers, but 2 of these were engaged in freight traffic only. The total number (7,441,114,508) for the last of the series of five years was 55.9 per cent greater than the total for the first year of the period.

The largest proportionate increases in fare passengers are shown for the Western and South Central divisions, while the numerical increases were largest for the North Atlantic and North Central divisions.

Transfer passengers.—Of the 811 companies which reported passengers in 1902, 408, or 50.3 per cent, granted transfers at one or more points on the road. For 1907, of the 944 companies that reported passengers, 522, or 55.3 per cent, issued transfers, though in 15 cases the number of transfer passengers was not reported. The total number of transfer passengers carried in 1902 was 22.2 per cent as great as the number of fare passengers. By 1907 the ratio had increased to 26.8 per cent. The New York City Railway Company, of New York, reported the largest number (178,261,972) of transfer passengers at the census of 1907, these passengers forming 51.7 per cent of the number of fare passengers carried by the company. At the census of

1902 the greatest number of passengers riding on transfers (115,524,487) was returned by the same company (then the Interurban Street Railroad) and formed 40.1 per cent of the number of fare passengers carried by the company.

The privilege of transferring appears to be enjoyed more generally by the patrons of the street railways in the District of Columbia than by those in any other state, for in the District the proportion that passengers riding on transfers formed of the number of fare passengers carried in 1907 was 42 per cent, as compared with 40.6 per cent for Missouri and 40.3 per cent for Illinois, which were next in rank. At the census of 1902 Missouri had the largest proportionate number of transfers, with 37 per cent, the District of Columbia being second, with 36.3 per cent.

The North Atlantic division returned the largest proportion of the total number of transfer passengers carried both in 1907 and in 1902, but the ratio decreased from 48.8 per cent in the earlier year to 45.1 per cent in the later year. The largest relative gain was in the South Central division and the smallest in the South Atlantic division.

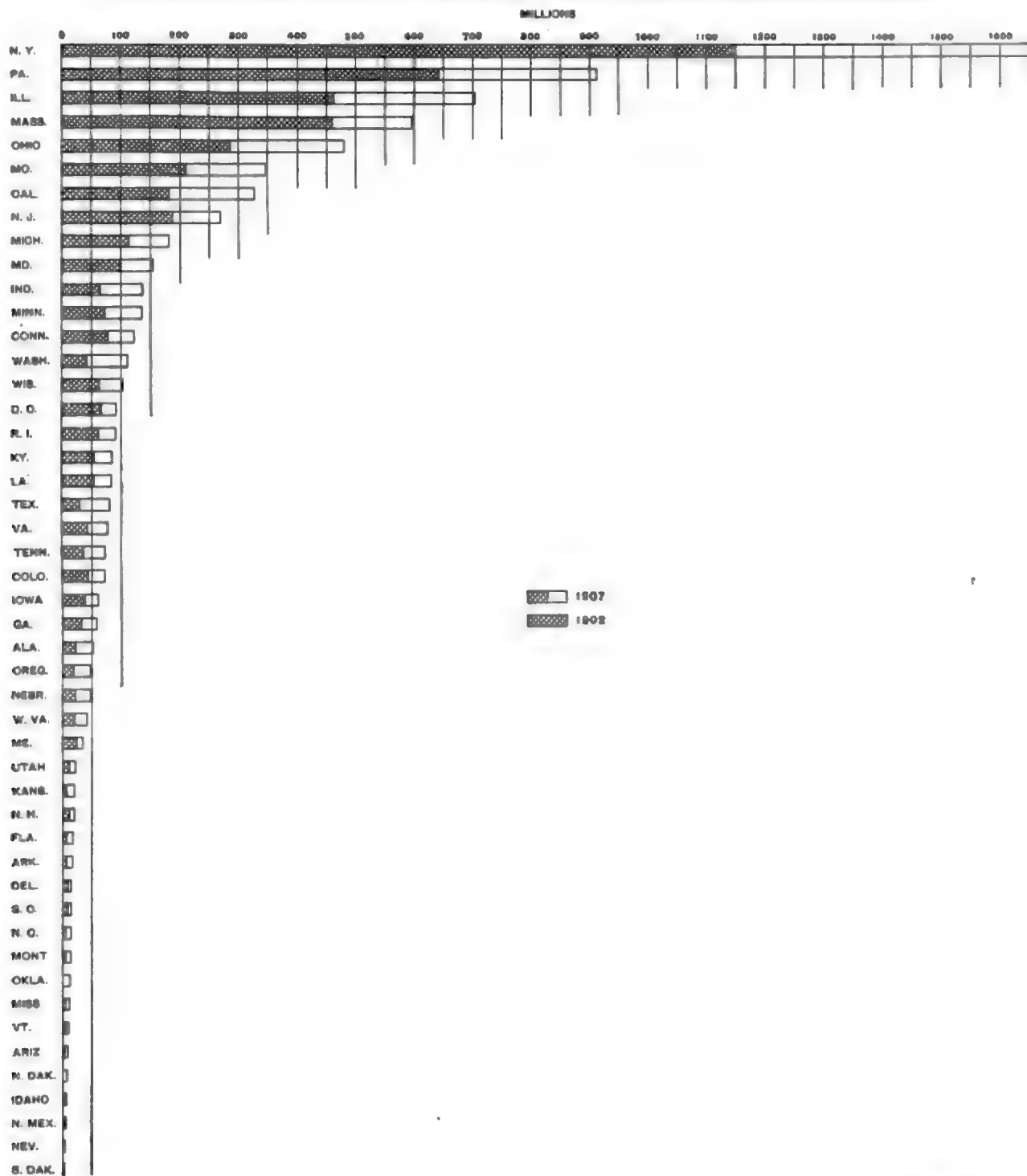
Transfer points.—There were 4,455 transfer points reported in 1902 as compared with 7,376 in 1907. This represents an increase of 65.6 per cent, but it is less than the rate of increase in transfer passengers. Although the term "transfer points" is intended to represent the junctions or geographic points where traffic is interchanged, some uncertainty surrounds the totals for such points, since the reporting companies did not all place precisely the same interpretation upon the inquiry. For example, 1 company at first reported 246 points for 1907 as against 21 in 1902, but later reduced the larger number to 69, with the explanation that by actual count there were 69 different points in the city where passengers could transfer from one line to another, but that in the first instance they had counted some of these points more than once, with the idea of reporting the number of lines crossing a given transfer point. It is not impossible that similar confusion elsewhere was uncorrected, to the impairment of the totals.

When geographic divisions are considered, the largest percentage of increase of transfer points as of transfer passengers was in the South Central states and the smallest in the South Atlantic.

Free passengers.—The free passengers, reported separately for the first time in 1907, include employees of the road and local government and other persons riding on passes, but do not include so-called "badge passengers"—policemen, letter carriers in uniform, and employees of the road carried without the presentation of a ticket or pass—since no record is kept of the last-mentioned class of passengers. Of the 944 operating companies reporting passengers, 628, or two-thirds, reported free passengers.

DIAGRAM 2.—NUMBER OF FARE PASSENGERS, BY STATES AND TERRITORIES: 1907 AND 1902.

[Based upon totals for companies credited to the several states but does not necessarily represent the actual traffic within state lines.]



Car mileage.—Car mileage has generally been employed both by steam and electric railways as the unit of service. Lately the car hour has been much used and was reported by 734 of the 945 operating companies included in the census of 1907. The car hour may be the better unit for general application, but it is not in universal use and the older and more familiar unit of car mile must be relied upon as the unit of comparison in census statistics. The desirability of the car mile as a scientific unit of measurement is well recognized.¹

While the car mile is the most available unit and serves fairly well for general comparative purposes, traffic statistics and averages based upon it must not be accepted without consideration of the following facts: (1) All companies do not keep accurate records of the number of miles each car travels during the year, and hence estimates were made for a number of systems; (2) there is a great difference in the size of the cars of the different companies and in the conditions under which they are operated; (3) there is a lack of uniformity in the method of computing car mileage where trailers are used. Some companies treat the motor car and trailer as a single car in making the

¹ The business of transportation has its own units of comparison, and each class or kind of transportation has its own and many of them, as it is further divided into distinctions of kind of service.

Electric railways are by the nature of their business but little, if at all, interested in or have use for most of the efficiency units of the steam railways, nor can either of them use those of steamboats. Thus it is that each kind of transportation must search for and test its own units.

Electric railways have lately become awake to the fact that the car mileage of horse-car days is not sufficient for present-day electric operation. And it is now searching for something to which it can tie as an effective unit. The latest step to the betterment of its efficiency unit was taken when it adopted the car hour as another means of proving both value and efficiency.

* * * It is doubtful if the time is near that the value and the efficiency of a company can be wholly gauged by the use of but one unit. It seems necessary that more than one will be required for some time to come. For purposes of its own, a company may use any one unit, but one only will not suffice for comparison with other companies. That is usually what is desired in a unit. It is especially true, if the operating and other conditions are not the same. * * *

Car mileage consists of two kinds, dead mileage and revenue mileage. Revenue mileage means the miles run by cars on regular runs, ready to bring in revenue. Dead mileage is well described by its name, that is, it consists of the miles run from and to the car house in order to arrive at its starting place upon its regular route. This mileage is literally dead. Frequently the cars make this trip twice a day with gates closed, permitting no passengers, and so, in a sense it is waste mileage, for if the car barns could be placed at some middle spot, there would be no dead mileage, because the cars would start from their barns upon their route. But this is very seldom permissible, through the cost of land and other causes; therefore dead mileage is a necessity, and as such must be included with revenue mileage to get the total mileage to do and doing business. Many companies do not do this, and this fact permits a better showing than actually is made. * * * Frequently the cost of this dead mileage will be so large that it will be good business policy to change the location of the barns that it may be reduced to its minimum.

One of the uses of car mileage is for the demonstration of the efficiency of car equipment. Many parts of the car and electrical equipment are renewed after attaining a certain mileage, and frequently some parts are purchased with the guarantee to make a certain mileage. * * * Thus maintenance has a use for car mileage, and custom has made its relation to earnings and expenses so familiar that it will continue as one of the units used in comparisons of street-railway operation.—*Electric Railway Accounting*, W. B. Brockway, 1906.

computation, while others consider each car as a separate unit.

In 1907 all of the 945 operating companies reported their car mileage; in 1902, 5 of the 817 companies failed to report this feature of their traffic statistics. The total distance traveled by all classes of cars increased from 1,144,430,466 miles in 1902 to 1,617,731,300 miles in 1907, or 41.4 per cent, representing an average of 17,136 miles per car for 1902 and 19,341 miles for 1907. When the total car mileage is divided by the miles of track of the roads, the result is an average of 50,819 car miles per mile of track in 1902 and 47,052 in 1907. These averages show that if the mileage were distributed equally over the entire trackage constructed at the end of the respective census years, each mile of track would have been covered by 50,819 cars in 1902 and 47,052 cars in 1907. The decrease in the average number of car miles per mile of track reflects the fact that the track has been extended into regions of low-traffic density.

The total car mileage in 1907 was made up of 97.9 per cent of passenger-car mileage and 2.1 per cent of express, freight, mail, and work car mileage; the latter including the mileage of electric and steam locomotives. At the census of 1902 the percentages were the same as those for 1907. The passenger-car mileage increased by 463,729,255 miles, or 41.4 per cent, but this rate of increase was not so great as the rate for the number of fare passengers carried (55.9).

The increase in the freight and express business of electric roads is better indicated by the income from this source, which amounted to \$6,792,017 in 1907 and to \$1,439,769 in 1902, than by the increase in the car mileage of the cars engaged in this class of work, as a considerable amount of such traffic is carried in combination passenger cars and the mileage for such cars is included in passenger-car mileage. Also the express, freight, and mail car mileage is combined with that of work cars and electric and steam locomotives. The total express, freight, mail, work, and locomotive car mileage amounted to 33,900,101 miles in 1907, an increase of 39.3 per cent over the 24,328,522 miles reported for 1902. But of the total for 1902, 15,201,575 represented the car miles run by steam locomotives on the elevated railways of the Manhattan Railway and Brooklyn Rapid Transit Company of New York. The use of steam locomotives on these roads has since been abandoned, and the roads electrified. When this mileage for steam locomotives is excluded, the rate of increase for the remaining mileage is 271.4 per cent, a percentage much greater than that for passenger-car mileage.

Express, freight, mail, and miscellaneous car miles were reported by 436 companies in 1907 as compared with 194 in 1902. In 1907 the largest amount of mileage of this class (4,500,000) was reported by the Portland Railway, Light and Power Company of

Oregon, and the smallest (16) by the New York, New Haven and Hartford Railroad Company (New Canaan branch) of Connecticut.

Fare passengers per mile of track.—By density of traffic is meant the number of passengers carried over a given length of track, and it necessarily varies for the different companies according to the miles of track and the amount of travel. A correct idea of the density of traffic can be obtained only by an examination of the statistics for each company given in Table 187,¹ and the increase or decrease by a summarization of the data for roads operated in the same territory during different years. Of course, an extension of track into rural districts where travel is comparatively light tends to reduce the average number of passengers carried per mile. The combination of the data for two or more companies located in different cities and operated under different conditions results in an average that is apt to be misleading.

The general statistics given in Table 51 for all companies show that there was an increase of 4,305, or 2 per cent, in the number of fare passengers per mile of track during 1907 as compared with 1902. There is naturally a wide variation in the average. The averages by states, excluding the District of Columbia, ranged in 1907 from 25,103 in South Dakota to 426,718 in New York, while the averages by companies ranged from 563 for the Pacific Railroad and Steamship Company to 7,821,429 for the Los Angeles Electric Incline Railway, both in California.

The North Atlantic states, on account of their urban population and street-railway development in urban centers, showed the greatest number of passengers per mile of track at both censuses—257,640 in 1902 and 271,025 in 1907. But the South Central group showed both the largest actual gain and the largest relative gain in 1907 as compared with 1902, the actual increase being from 158,875 to 217,337, or 58,462 passengers per mile, the rate of increase being 36.8 per cent. In this group of states there was a comparatively low rate of increase in trackage with a high rate in number of fare passengers. In the Western division the number of fare passengers per mile of track actually decreased from 190,225 in 1902 to 165,495 in 1907, or 13 per cent, as a result of the large interurban development in the southern and northern parts of California and of the decrease in the number of passengers per mile of track for the San Francisco companies, which in 1907 had not regained the traffic that had been developed before the earthquake in 1906.

¹ The averages for each company are based on the total miles of track operated by it, including in a number of cases a certain amount of track belonging to other companies and operated jointly under trackage rights.

There were 9 states in which the number of fare passengers per mile of track decreased in 1907 as compared with 1902, but in each case the explanation is found in a more rapid addition of trackage than of passengers carried.

Fare passengers per car mile.—In addition to the previously mentioned uncertainties surrounding the car mile as a unit of measurement of service, there are others to be noted—such as the varying use of large and small cars and the different methods of recording fare passengers on suburban and interurban lines—when the ratio of number of fare passengers carried to the number of car miles run is considered. For all operating companies the average in 1907 was 4.70 as compared with 4.26 in 1902, an increase of 10.3 per cent. Though the uncertainties in the data for car miles and passengers can not be measured, as there is no basis upon which to determine the extent of the disturbing factors, yet it may be stated that the main factors tending to increase the ratio are the increase in traffic in urban centers, normally attending growth of population, and the more general use of larger cars. Conversely, the extension of track into thinly populated districts operates to reduce the average number of passengers carried per car mile. In the main the results of these counteracting influences are shown in the ratios for the states and selected groups.

As in the case of passengers per mile of track, the ratio of passengers per car mile was highest in the North Atlantic group of states, while the largest increase was again in the South Central states, where there was very little interurban development but an increase in the population served.

The largest number of passengers per car mile in 1907 was 5.95, for Rhode Island, and the lowest, 2.07, for Arizona, as compared with extremes of 5.35 for New Jersey and 1.19 for New Mexico in 1902. There were 20 companies in 1907 that reported an average of less than one person per car mile, but in the case of 10 of these companies the low ratio was due to the practice of counting through passengers on interurban lines as trip rather than as zone passengers. The other 10 companies were found to be small animal-power roads, new roads just beginning operations, or roads operated only to hold franchises.

Maximum density of traffic.—The operating conditions of railways in centers of dense population and congested business districts are very different from those in the average city or those of long and fast interurban lines. The surface, elevated, and subway lines of New York City, Chicago, Philadelphia, and Boston have been selected as typical of this class of railways, and their traffic statistics for 1907 and 1902 are here presented separately.

TABLE 53. MAXIMUM DENSITY OF TRAFFIC—SELECTED RAILWAYS: 1907 AND 1902.

LOCATION AND KIND OF SYSTEM.	NUMBER OF OPERATING COMPANIES.		MILES OF TRACK OPERATED.		NUMBER OF FARE PASSENGERS.		FARE PASSENGERS PER MILE OF TRACK.		PASSENGER-CAR MILEAGE.		FARE PASSENGERS PER CAR MILE.	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
New York (Manhattan and Bronx boroughs), N. Y.:												
Surface, elevated, and subway, total.....	7	12	651.94	510.06	862,067,804	626,077,169	1,322,311	1,229,222	105,075,775	111,031,925	5.22	5.65
Surface.....	6	11	401.41	302.92	412,779,739	411,717,824	894,035	1,047,841	86,269,035	65,900,182	6.23	6.24
Elevated and subway.....	1	1	190.53	117.14	449,287,864	215,259,345	2,358,085	1,837,625	98,792,770	45,071,743	4.55	4.78
Chicago, Ill.:												
Surface and elevated, total.....	7	7	933.95	555.59	548,618,412	394,056,000	587,417	461,268	122,213,396	96,540,464	4.49	4.09
Surface.....	3	3	787.35	734.33	411,083,347	294,809,570	522,110	401,467	80,136,759	69,391,892	4.77	4.26
Elevated.....	4	4	146.60	121.26	137,535,065	99,246,430	938,168	823,406	30,076,637	27,154,572	3.61	3.68
Philadelphia, Pa.:												
Surface.....	1	1	1619.85	475.46	424,275,023	235,801,963	684,481	685,235	81,263,251	50,875,543	5.22	5.49
Boston, Mass.:												
Surface, elevated, and subway....	1	1	457.65	404.94	271,084,915	222,484,811	592,341	549,427	51,830,188	45,772,636	5.23	4.86

¹ Includes 7.67 miles of elevated and 3.23 miles of subway track.

The roads included in the table, representative of street-railway management under fairly comparable conditions, are operated by the following companies: For New York City, *surface*, 1907—New York City Railway; New York City Interborough Railway; Forty-second Street, Manhattanville and St. Nicholas Avenue Railway; Dry Dock, East Broadway and Battery Railroad; Southern Boulevard Railroad; and Union Railway Company of New York City: 1902—the 4 last-named roads and the Interurban Street Railroad; Central Crosstown Railroad; Fulton Street Railroad; Thirty-fourth Street Crosstown Railway; Twenty-eighth and Twenty-ninth Street Crosstown Railroad; Third Avenue Railroad; and Kingsbridge Railway. *Elevated and subway*, 1907—Interborough Rapid Transit: 1902—Manhattan Railway. For Chicago, *surface*, 1907 and 1902—Chicago City Railway; Chicago Union Traction; and Chicago Consolidated Traction. *Elevated*, 1907 and 1902—Chicago and Oak Park Elevated Railroad (Lake Street Elevated Railroad in 1902); Metropolitan West Side Elevated Railway; Northwestern Elevated Railroad; and South Side Elevated Railroad. For Philadelphia, 1907 and 1902—Philadelphia Rapid Transit (Union Traction was the operating company in 1902). For Boston, 1907 and 1902—Boston Elevated Railway. These selected roads carried 2,106,046,664 fare passengers, or 28.3 per cent of the total for the United States in 1907, and 1,569,919,943, or 32.9 per cent of the total, in 1902.

The maximum density of passenger traffic was cen-

tered in Manhattan and Bronx boroughs of New York City at both censuses, and the average for these boroughs increased by 93,089 passengers per mile of track from 1902 to 1907. All of this increase, however, was in the traffic of the elevated and subway roads, as the average for surface lines decreased from 1,047,841 to 894,605. The figures for the "Elevated and subway" represent only elevated lines in 1902 and elevated and subway lines in 1907. With the opening of the subway, a large amount of the traffic in the most congested districts was directed thither, as is shown by the decreased average for the surface lines.

Philadelphia had the next highest average number of passengers per mile of track, with 684,481 in 1907 and 685,235 in 1902. Although the elevated lines in Chicago had a heavier passenger traffic per mile at both censuses, the ratio for surface and elevated lines in that city taken together was considerably lower than the ratio in Philadelphia. The slight decrease in the traffic density in Philadelphia between the census years is probably to be explained by the extension of lines into the suburbs and outlying districts.

Of the selected roads under consideration, the largest number of passengers carried per car mile run in 1907, namely, 6.23, was on the surface lines of New York City.

The few street-cable roads still in operation are located in districts of heavy traffic and they, as well as the inclined cable railways, naturally show a very large number of persons carried per mile of track.

TABLE 54. —TRAFFIC OF EXCLUSIVELY CABLE ROADS: 1907 AND 1902.

	CABLE ROADS.									
	Total.		Surface.		Inclined-plane.		Per cent of decrease.			
	1907	1902	1907	1902	1907	1902	Total.	Surface.	Inclined-plane.	
Number of operating companies.....	10	12	2	2	8	10	16.7	.....	.....	20.0
Miles of track.....	20.70	23.65	17.79	18.54	2.91	5.11	12.6	4.0	43.1	43.1
Number of fare passengers.....	11,993,943	16,096,934	7,823,423	12,208,123	4,470,450	3,798,815	25.4	38.8	18.6	18.6
Fare passengers per mile of track.....	579,418	679,364	422,903	653,329	1,536,237	737,541	14.7	36.2	108.3	108.3
Passenger-car mileage.....	1,080,940	2,499,078	806,029	2,214,612	244,911	284,466	57.9	63.6	13.9	13.9
Fare passengers per car mile.....	11.41	16.42	9.33	15.55	18.25	13.16	17.7	168.1	38.7	38.7

¹ Increase.

² Exclusive of 24,751 fare passengers for which car miles were not reported.

The companies included in the table were operated exclusively by cable power, and although they operated only 20.70 miles of track their traffic was considerable and the density of traffic per mile of track and per car mile was high.

Traffic, by character of power.—As all but 1 per cent

of the total trackage reported by street and electric railways in 1907 was operated by electric power, it follows that a correspondingly high proportion of traffic was electric. This is shown by the statistics given in Table 55.

TABLE 55.—TRAFFIC, BY CHARACTER OF POWER: 1907 AND 1902.

	CHARACTER OF POWER.									
	Total.		Electric. ¹		Animal exclusively.		Cable exclusively.		Steam exclusively. ²	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
Miles of track.....	34,403.56	22,576.90	34,277.89	22,383.16	65.98	158.12	20.70	23.65	57.90	12.05
Per cent of total.....	100.0	100.0	99.6	99.1	0.1	0.7	0.1	0.1	0.2	0.1
Number of passengers, total.....	9,533,080,798	5,836,615,286	9,517,612,898	5,771,087,177	1,190,733	45,535,021	13,787,595	19,822,553	480,540	160,945
Per cent of total.....	100.0	100.0	99.8	98.9	(³)	0.8	0.1	0.3	(³)	(³)
Fare.....	7,441,114,508	4,774,211,904	7,427,453,602	4,724,418,100	1,189,733	33,556,832	11,993,943	16,066,956	477,140	160,945
Per cent of total.....	100.0	100.0	99.8	99.0	(³)	0.7	0.2	0.3	(³)	(³)
Transfer.....	2,091,966,288	1,062,403,392	2,090,159,296	1,046,669,086	10,000	11,978,780	1,793,652	2,755,595	3,400	.....
Per cent of total.....	100.0	100.0	99.9	98.5	(³)	1.1	0.1	0.4	(³)	(³)
Transfer points.....	7,376	4,455	7,308	4,372	1	72	7	11	(³)	(³)
Per cent of total.....	100.0	100.0	99.9	98.1	(³)	1.6	0.1	0.2	(³)	(³)
Car mileage, total.....	1,617,731,300	1,144,430,468	1,616,028,042	1,136,152,035	283,614	5,609,653	1,063,000	2,500,478	253,444	104,300
Per cent of total.....	100.0	100.0	99.9	99.3	(³)	0.5	0.1	0.2	(³)	(³)
Passenger cars.....	1,563,831,199	1,120,101,944	1,562,208,400	1,111,875,100	380,996	5,648,197	1,060,940	2,409,078	201,794	79,650
Per cent of total.....	100.0	100.0	99.9	99.3	(³)	0.5	0.1	0.2	(³)	(³)
Express, freight, mail, etc., cars.....	33,900,101	24,328,522	33,820,173	24,276,936	13,618	21,546	12,060	1,400	53,650	28,450
Per cent of total.....	100.0	100.0	99.8	99.8	(³)	0.1	(³)	(³)	0.2	0.1

¹ Includes miles of animal, cable, and steam track operated in connection with electric trackage: 1907—218.20 miles; 1902—475.57 miles.

² Includes 40.00 miles of track in 1907 operated exclusively by gasoline-motor cars.

³ Less than one-tenth of 1 per cent.

⁴ Includes 90,308,157 free passengers.

The railways operated exclusively by animal power carried only eight-tenths of 1 per cent of the total number of passengers in 1902. By 1907 the proportion had decreased to less than one-tenth of 1 per cent. The purely cable roads carried only three-tenths of 1 per cent in 1902, and only one-tenth of 1 per cent in 1907, while the roads operated exclusively by steam

locomotives and gasoline motors hauled less than one-tenth of 1 per cent at each census.

Passenger traffic of electric railways and steam railroads.—A comparative showing of the passenger business of the street and electric railways and the steam railroads for 1907 and 1902 is given in the following table:

TABLE 56.—PASSENGER TRAFFIC OF STREET AND ELECTRIC RAILWAYS AND STEAM RAILROADS: 1907 AND 1902.

	NUMBER OF FAKE PASSENGERS.			RECEIPTS FROM PASSENGERS.		
	1907	1902	Per cent of increase.	1907	1902	Per cent of increase.
Street and electric railways.....	7,441,114,508	4,774,211,904	55.9	\$382,132,494	\$233,821,548	63.4
Steam railroads ¹	873,905,133	640,878,505	34.5	\$64,606,343	\$92,963,248	43.7

¹ Statistics of railways, annual reports of Interstate Commerce Commission.

The service of the steam railroads and urban electric railways is so dissimilar that a comparison of the number of passengers carried has but slight significance. Such a comparison indicates, however, that the traffic of street and electric railways increased much more rapidly than that of steam railroads. The steam roads, during the year ending June 30, 1907, carried 873,905,133 passengers an average distance of 31.72 miles. The average distance traveled could not be ascertained for the electric railways, but it was of course very much less than the average length of ride on the steam railroads.

The average length of journey per passenger on the

steam railroads for each fiscal year from 1889 to 1907 is given in the following statement:

Average length of journey per passenger on steam railroads.¹

FISCAL YEAR.	Miles.	FISCAL YEAR.	Miles.
1907.....	31.72	1897.....	25.04
1906.....	31.54	1896.....	25.50
1905.....	32.21	1895.....	24.02
1904.....	30.64	1894.....	26.43
1903.....	30.10	1893.....	23.97
1902.....	30.30	1892.....	23.82
1901.....	28.59	1891.....	24.19
1900.....	27.80	1890.....	24.08
1899.....	27.80	1889.....	24.47
1898.....	26.70		

¹ Statistics of railways, annual reports of Interstate Commerce Commission.

Beginning with 1898 there was a marked increase in the average length of journey per passenger, due in a large degree, no doubt, to the growth of electric railways and the deflection of suburban and short-haul travel to electric lines. The marked temporary increase in 1894 was probably caused by the World's Fair in Chicago.

Traffic in relation to population.—It is impracticable to ascertain the exact population of the areas from which the street and electric railways draw their traffic. The entire population of every city in which such roads operate may be regarded as within the area of passenger service, though in many instances sections of the city are not traversed by the railway and the

population is benefited only indirectly. The population of adjacent territory served by interurban roads can be approximated only by including the entire population of all minor civil divisions traversed, and such an estimate would probably be excessive and misleading. But there is a close relation between the population, which represents the possible or available traffic, and the actual number of passengers carried, and the only practicable method of showing this relationship is to take the entire population of large areas, although only a part, and in some instances a very small part, of the area is traversed by the railway. This comparison is made in Table 57.

TABLE 57.—RELATION OF PASSENGER TRAFFIC TO TOTAL AND URBAN POPULATION, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	Number of operating companies.	POPULATION. ¹			Number of fare passengers.	AVERAGE NUMBER OF RIDES PER INHABITANT.	
			Total.	Urban (places of 8,000 and over).	Ratio of urban to total population.		Total population.	Urban population.
United States.....	1907	^a 944	85,532,761	29,751,774	34.8	7,441,114,508	87	240
	1902	^a 511	78,576,436	25,317,705	32.5	4,774,211,904	61	161
North Atlantic division.....	1907	370	23,779,013	14,510,828	61.0	3,714,134,688	156	256
	1902	360	21,778,196	12,908,949	59.6	2,618,328,979	129	202
Maine.....	1907	17	717,632	179,909	25.1	36,730,145	51	204
	1902	19	700,072	169,011	24.1	26,495,164	36	151
New Hampshire.....	1907	16	436,128	179,397	41.1	20,086,060	46	112
	1902	7	418,902	164,772	39.4	11,304,908	27	69
Vermont.....	1907	10	351,495	44,971	12.8	7,108,082	20	138
	1902	9	345,885	40,411	11.7	4,274,806	12	106
Massachusetts.....	1907	63	2,083,013	2,368,514	76.8	697,460,848	194	252
	1902	75	2,917,790	2,199,925	75.4	461,745,615	158	210
Rhode Island.....	1907	6	800,092	411,422	51.2	91,171,989	182	232
	1902	8	445,938	365,328	81.9	62,279,165	140	170
Connecticut.....	1907	9	1,021,023	577,861	56.5	122,653,772	120	212
	1902	22	941,184	514,396	54.7	77,447,101	82	151
New York.....	1907	101	8,386,073	6,015,886	71.7	1,657,086,801	198	276
	1902	96	7,535,011	5,261,822	70.2	1,144,491,509	152	216
New Jersey.....	1907	26	2,248,332	1,400,526	62.3	269,090,070	120	192
	1902	26	1,909,821	1,222,930	62.1	188,976,899	96	155
Pennsylvania.....	1907	122	7,032,915	3,332,312	47.4	912,233,290	130	274
	1902	96	6,505,887	3,000,346	46.1	642,513,512	99	214
South Atlantic division.....	1907	101	11,574,988	2,078,048	18.0	487,081,528	42	235
	1902	79	10,770,414	1,855,478	17.2	297,198,541	28	160
Delaware.....	1907	4	196,104	86,420	44.1	15,723,737	80	182
	1902	3	187,461	79,000	42.1	9,956,550	53	126
Maryland.....	1907	13	1,290,000	616,582	47.8	132,268,326	118	247
	1902	10	1,217,174	574,379	47.2	99,989,552	82	174
District of Columbia.....	1907	6	312,548	312,548	100.0	91,596,056	293	263
	1902	8	268,384	268,384	100.0	68,162,321	229	229
Virginia.....	1907	23	1,992,925	337,158	16.9	77,800,268	39	229
	1902	20	1,699,460	286,558	15.1	44,275,661	23	154
West Virginia.....	1907	15	1,086,006	89,677	8.2	42,749,821	39	477
	1902	8	998,004	76,371	7.7	21,706,870	22	264
North Carolina.....	1907	11	2,086,912	123,609	5.9	14,086,151	7	114
	1902	7	1,948,984	101,105	5.2	5,337,367	3	53
South Carolina.....	1907	7	1,472,734	111,165	7.5	15,084,635	11	141
	1902	7	1,378,160	103,312	7.5	9,056,918	7	86
Georgia.....	1907	11	2,481,017	292,366	11.8	59,700,450	24	204
	1902	10	2,296,713	239,276	11.3	32,463,561	14	125
Florida.....	1907	10	646,142	108,523	16.8	18,889,055	29	174
	1902	6	554,104	86,794	15.7	8,249,542	15	95

¹ Population for 1907 and 1902 is the official estimate for those years.

^a Exclusive of 1 company with 15 miles of track, for which fare passengers were not reported.

^b Exclusive of 6 companies with 80.14 miles of track, for which fare passengers were not reported.

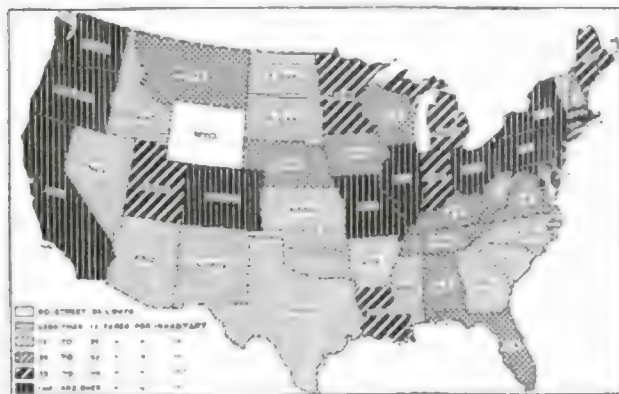
TABLE 57.—RELATION OF PASSENGER TRAFFIC TO TOTAL AND URBAN POPULATION, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OR TERRITORY.	Census.	Number of operating companies.	POPULATION. ¹			Number of fare passengers.	AVERAGE NUMBER OF RIDES PER INHABITANT.	
			Total.	Urban (places of 8,000 and over).	Ratio of urban to total population.		Total population.	Urban population.
North Central division.....	1907	292	29,026,646	9,737,433	33.5	2,223,625,349	77	228
	1902	228	27,087,206	8,519,447	31.5	1,344,000,951	50	158
Ohio.....	1907	73	4,497,198	1,894,404	41.9	480,843,805	107	265
	1902	63	4,252,372	1,672,272	39.3	265,434,579	67	171
Indiana.....	1907	33	2,743,305	763,629	27.8	137,547,183	50	180
	1902	27	2,561,575	649,554	25.2	66,255,767	26	102
Illinois.....	1907	60	5,518,160	2,796,468	50.7	708,493,137	127	252
	1902	49	5,019,628	2,421,403	48.2	463,190,966	92	191
Michigan.....	1907	24	2,611,790	883,447	33.8	183,239,042	70	207
	1902	24	2,460,764	778,917	31.4	113,916,992	46	146
Wisconsin.....	1907	20	2,292,911	726,193	31.7	102,771,360	45	142
	1902	17	2,127,974	682,988	31.2	63,537,300	29	94
Minnesota.....	1907	5	2,071,318	619,955	29.9	136,122,311	66	220
	1902	5	1,822,108	512,873	28.1	73,236,612	40	143
Iowa.....	1907	24	2,301,331	441,612	20.1	61,459,660	28	139
	1902	22	2,301,427	393,834	17.1	38,659,580	17	88
Missouri.....	1907	14	3,405,001	1,100,481	32.3	346,361,741	102	315
	1902	16	3,187,031	906,901	31.3	211,808,737	66	212
North Dakota.....	1907	4	487,480	13,681	2.8	1,071,904	4	137
	1902	(²)	344,778	10,757	3.1			
South Dakota.....	1907	1	476,631	13,084	2.7	125,515	(³)	10
	1902	(⁴)	420,908	11,072	2.6			
Nebraska.....	1907	8	1,068,849	215,916	20.2	49,823,061	46	228
	1902	4	1,067,526	182,148	16.7	22,228,325	20	122
Kansas.....	1907	17	1,651,331	278,473	16.9	20,386,380	12	73
	1902	11	1,462,217	228,728	15.6	6,832,064	5	30
South Central division.....	1907	90	16,368,558	1,850,964	11.3	414,225,626	25	224
	1902	86	14,631,335	1,622,645	11.1	210,103,891	14	129
Kentucky.....	1907	13	2,349,152	412,613	17.6	85,858,931	37	206
	1902	12	2,202,804	375,301	17.0	56,298,852	26	150
Tennessee.....	1907	9	2,197,785	333,240	15.2	73,746,986	34	221
	1902	8	2,070,354	280,968	13.6	25,007,635	17	127
Alabama.....	1907	10	2,049,407	163,627	8.0	82,197,482	25	319
	1902	9	1,991,755	143,260	7.6	22,748,671	12	159
Mississippi.....	1907	8	1,734,430	50,523	2.9	9,084,086	5	180
	1902	5	1,603,604	43,733	2.7	3,101,015	2	71
Louisiana.....	1907	11	1,565,732	348,609	22.3	85,193,632	54	244
	1902	9	1,434,032	324,164	22.6	35,343,843	39	171
Arkansas.....	1907	9	1,439,910	89,628	6.2	17,145,287	12	191
	1902	7	1,347,634	74,891	5.6	6,980,479	5	92
Oklahoma.....	1907	8	1,414,177	44,104	3.1	9,502,472	7	215
	1902	(¹)	897,748	27,631	3.1			
Texas.....	1907	23	3,617,936	406,440	11.3	81,496,650	23	200
	1902	17	3,203,303	352,597	11.0	20,037,966	9	88
Western division.....	1907	91	4,793,557	1,574,481	32.8	601,247,317	126	382
	1902	88	4,289,085	1,351,286	31.5	304,379,572	71	225
Montana.....	1907	5	313,615	98,591	31.4	13,862,231	44	141
	1902	5	260,130	75,968	28.6	6,858,602	26	90
Idaho.....	1907	2	213,028			1,326,964	6	
	1902	1	178,416			314,340	2	
Wyoming.....	1907	(²)	105,530	20,843	19.8			
	1902	(³)	98,527	21,880	22.2			
Colorado.....	1907	11	628,216	239,254	38.1	73,456,666	117	307
	1902	7	566,715	212,003	37.9	42,371,590	76	206
New Mexico.....	1907	2	219,830			1,029,046	5	
	1902	1	202,316			73,000	(⁴)	
Arizona.....	1907	4	147,214			1,901,951	13	
	1902	2	129,000			797,370	6	
Utah.....	1907	3	322,928	79,624	24.6	21,106,491	65	265
	1902	3	289,519	71,896	24.8	11,493,501	40	160
Nevada.....	1907	1	42,335			620,000	15	
	1902	(¹)	41,331					
Washington.....	1907	14	630,712	264,404	41.9	110,506,620	175	418
	1902	8	536,055	189,138	35.0	41,544,228	74	220
Oregon.....	1907	6	464,038	122,677	26.3	49,456,483	102	408
	1902	6	429,390	103,938	24.2	18,726,442	44	180
California.....	1907	41	1,675,211	749,188	44.7	327,977,151	196	428
	1902	35	1,537,837	676,496	44.0	182,196,999	118	269

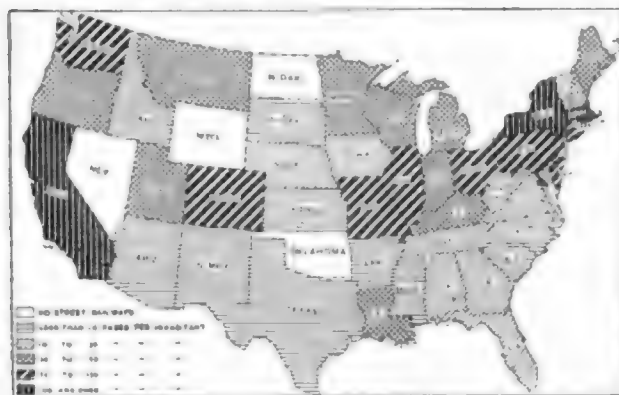
¹ Population for 1907 and 1902 is the official estimate for those years.² No company reported.³ Less than 1.⁴ 1 company reported, but no fare passengers.

The extension of the interurban lines has resulted in some interstate traffic on the electric railways. There is also a considerable interstate travel when cities are located near the state line, as is the case with cities such as Kansas City, Kans., Kansas City, Mo., and Washington, D. C., and numerous places near the state lines of Connecticut, Rhode Island, and Massachusetts. While the increase in the trolley travel between states detracts from the value of the statistics for the different states, the interstate passengers form but a small proportion of the total number carried within the limits of most states, and the averages may be accepted as indicating the relationship between population and passenger traffic, and as giving an idea of the extent of the development of electric railways in the different states and geographic divisions, and of the growth of the patronage they receive from those within reach of their service. As a rule, the urban population controls the average number of rides per inhabitant. The presence of large cities in a state, with the resulting great density of traffic, necessarily increases the average number of rides per inhabitant for the entire population of the state.

MAP 1.—Average number of fare passengers per inhabitant, by states and territories: 1907.



MAP 2.—Average number of fare passengers per inhabitant, by states and territories: 1902.



It is not to be assumed that all of the inhabitants of a state nor that even all of the inhabitants of places of 8,000 and over are served by the electric railways.

In no case, with the exception of the District of Columbia, can it be said that all of the inhabitants of a state are within reach of electric railways. But the relative gains in the average number of rides per inhabitant, in the case of the total and the urban population, for the states and geographic divisions, afford an index to the growth of traffic in the different localities. The District of Columbia can be taken as representative of an urban district where all of the inhabitants were served by electric railways at both censuses. With an increase in population of 8.4 per cent, the number of fare passengers increased 38.4 per cent, and the average number of rides per inhabitant increased from 229 in 1902 to 293 in 1907, or 27.9 per cent. Considering all states, but excluding the District of Columbia, New York had the highest number of rides per total population in 1907, and South Dakota the lowest. In 1902 the corresponding extremes were indicated for Massachusetts and New Mexico. Between 1902 and 1907 Washington increased its average by 101, the greatest gain for any of the states.

The percentages of estimated increase in population, in number of fare passengers carried, and in the average number of rides per inhabitant, for the geographic divisions, are given in the following table:

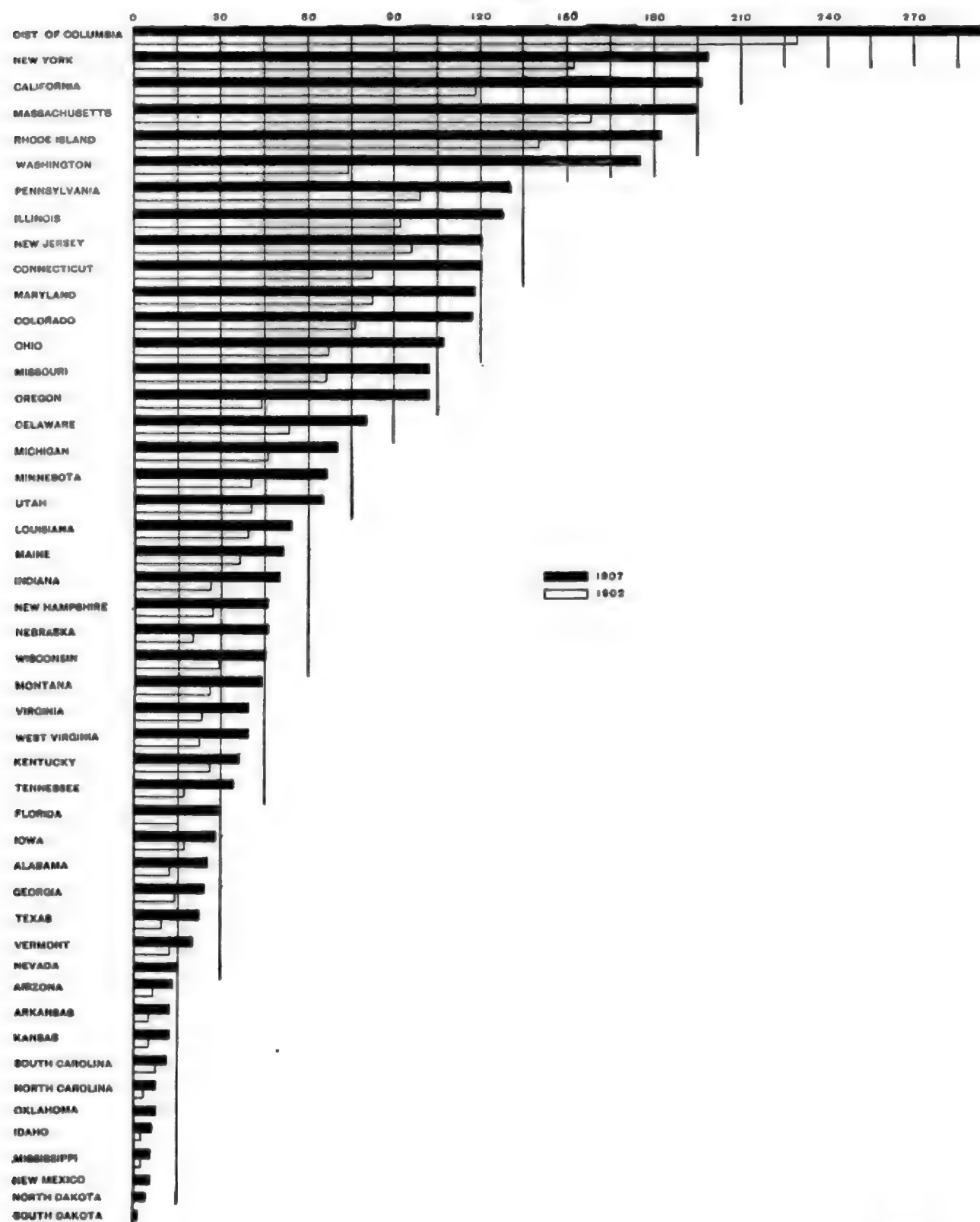
TABLE 58.—Per cent of increase in population, fare passengers, and average number of rides per inhabitant: 1902 to 1907.

DIVISION.	POPULATION.		Number of fare passengers.	AVERAGE NUMBER OF RIDES PER INHABITANT IN—	
	Total.	Urban (places of 8,000 and over).		Total population.	Urban population.
United States.....	8.9	13.0	55.9	42.6	38.1
North Atlantic.....	9.2	11.9	41.8	30.0	26.7
South Atlantic.....	7.5	12.0	84.2	50.0	46.9
North Central.....	7.2	14.3	65.4	54.0	44.3
South Central.....	11.7	14.1	97.2	78.6	73.6
Western.....	11.5	16.5	97.5	77.5	69.8

As stated above, the number of passengers carried by the steam railroads increased from 649,878,505 in the fiscal year 1902 to 873,905,133 in the fiscal year 1907, a gain of 34.5 per cent. These totals represented an average of 8 rides per inhabitant in 1902 and 10 rides in 1907, on the basis of the estimated population in those years. The comparative figures for electric railways and steam railroads are as follows:

	AVERAGE NUMBER OF RIDES PER INHABITANT.		
	1907	1902	Per cent of increase.
Street and electric railways.....	87	61	42.6
Steam railroads.....	10	8	25.0

DIAGRAM 3.—AVERAGE NUMBER OF FARE PASSENGERS PER INHABITANT, BY STATES AND TERRITORIES: 1907
AND 1902.



Traffic of companies, classified according to income from railway operations.—The street and electric railways are no exception to the rule that a comparatively small number of large companies control a large proportion of the annual business of all. This concentration is probably as pronounced in the case of the railways as in the case of any other branch of industry. In some instances systems located in different cities and and reported to the Census Bureau as separate units are owned by the same company. To make a correct presentation of the statistics for centralization of ownership it would be necessary to bring together all of the reports

for such properties and consider them as a single return. But this would be impracticable, because there are many variations in the form or degree of ownership, or the extent to which the operation of certain systems is under the control of other companies. The only method that could be followed uniformly was to consider each company named in Table 183 as a separate unit.

A study of the comparative statistics for companies, classified according to size, on a basis of income from railway operations, shows a marked increase in the larger classes between 1902 and 1907.

TABLE 59.—TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$300,000 but less than \$1,000,000.	\$250,000 but less than \$300,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of operating companies.....	1907	945	77	50	82	183	513	8.1	5.3	8.7	19.4	58.5
Per cent of increase.....	1902	817	44	28	57	116	572	5.4	3.4	7.0	14.2	70.0
		15.7	75.0	78.6	43.9	57.8	13.3					
Miles of track.....	1907	34,403.56	15,564.34	4,386.24	4,000.76	4,979.68	5,463.54	45.2	12.7	11.7	14.5	15.9
Per cent of increase.....	1902	22,576.99	8,414.31	2,127.29	2,782.59	3,478.97	5,773.93	37.3	9.4	12.3	13.4	25.6
		52.4	85.0	106.2	44.1	43.1	15.4					
Number of fare passengers.....	1907	7,441,114,508	5,626,200,180	584,865,974	450,999,780	452,781,532	326,247,042	75.6	7.9	6.1	6.1	4.4
Per cent of increase.....	1902	4,774,211,904	3,357,706,250	399,317,716	349,234,327	336,108,869	342,754,743	70.3	8.1	7.3	7.0	7.2
		55.9	67.6	50.6	29.1	34.7	14.8					
Number of transfer passengers.....	1907	2,091,966,258	1,815,692,175	119,202,968	77,070,173	82,033,817	27,967,125	89.9	5.7	3.7	2.5	1.3
Per cent of increase.....	1902	1,062,403,392	837,046,245	79,598,052	61,137,321	55,972,457	28,631,317	78.8	7.6	5.8	5.3	2.7
		98.9	116.9	49.8	26.1	17.0	12.4					
Fare passengers per mile of track.....	1907	216,522	361,701	133,370	112,476	91,371	59,741					
	1902	212,217	399,056	182,541	125,507	97,707	59,790					
Passenger-car mileage.....	1907	1,583,831,199	1,119,283,959	139,504,319	110,959,376	117,728,249	96,255,296	70.7	8.8	7.0	7.4	6.1
Per cent of increase.....	1902	1,120,101,944	712,045,296	98,509,952	93,977,198	100,885,025	114,634,263	63.6	8.6	8.6	9.0	10.2
		41.4	57.2	44.5	15.0	16.7	15.9					
Fare passengers per car mile.....	1907	4.70	5.03	4.19	4.06	3.85	3.39					
	1902	4.26	4.72	4.02	3.64	3.33	2.99					
Mileage of express, freight, mail, etc., cars.....	1907	33,900,101	16,308,565	7,990,915	3,990,095	3,625,365	1,065,231	48.1	23.6	11.7	10.7	5.9
Per cent of increase.....	1902	24,328,522	19,787,632	698,419	1,186,954	871,970	1,795,827	31.3	2.8	4.9	3.6	7.4
		39.3	17.6	1,064.1	235.3	816.9	10.6					
Total car mileage.....	1907	1,617,731,300	1,135,592,514	147,495,234	114,939,411	121,363,614	96,340,527	70.2	9.1	7.1	7.5	6.1
Per cent of increase.....	1902	1,144,430,668	731,882,858	97,196,371	97,164,452	101,756,995	116,429,790	64.0	8.5	8.5	8.9	10.2
		41.4	55.2	51.7	19.3	19.3	15.5					
Car miles per mile of track.....	1907	47.022	73.006	33.633	28.665	24.417	18.008					
	1902	50.819	86.981	45.690	34.919	29.581	20.230					

¹ Decrease.

² Includes 96,308,157 free passengers.

³ Exclusive of 1 company with 15 miles of track which did not report fare passengers (an exclusively freight road) and 22.05 miles of track not operated, distributed as follows: 9.49 miles in Class A, 0.79 mile in Class B, 24.27 miles in Class D, 2.50 miles in Class E.

⁴ Exclusive of 6 companies with 80.14 miles of track which did not report fare passengers (2 companies with 22.85 miles were exclusively freight roads), distributed as follows: 39 miles in Class D and 41.14 miles in Class E.

⁵ Includes 15,201,575 car miles run by steam locomotives on Brooklyn Rapid Transit and Manhattan (elevated) railways.

⁶ Exclusive of 22.05 miles of track not operated, distributed as follows: 9.49 miles in Class A, 0.79 mile in Class B, 9.27 miles in Class D, 2.50 miles in Class E.

⁷ Exclusive of 5 companies with 37.47 miles of track for which car miles were not reported, distributed as follows: 39 miles in Class D and 18.47 miles in Class E.

The largest proportionate increases in number of companies were in Classes B and A, while the number in Class E diminished. While in 1902, 70 per cent of all companies were in Class E, in 1907 that class constituted but 58.5 per cent of the total number of companies. On the other hand, the proportion of the total number in the case of each of the other classes increased. In miles of track the concentration is even more marked. The highest percentages of increase in track were again in Classes B and A, the ratios of increase in Classes C and D were about equal, while the miles of track in Class E decreased. The miles of

track in Classes C, D, and E constituted less proportionate parts of the total track in 1907 than in 1902, while Classes A and B gained largely in proportion between the two censuses. In number of fare passengers carried the increase was greatest in Class A. Although Class E is the only group showing a decrease, yet Classes B, C, and D represented, each of them, a smaller proportion of the total in 1907 than in 1902.

It will be observed that the average number of fare passengers per mile of track increased slightly for the country as a whole. In each of the four upper classes the increase in trackage was proportionately greater

than the increase in the number of fare passengers carried, while in Class E the ratio of decrease in trackage was slightly greater than the decrease in the number of fare passengers, with the result that for each class there appears a decrease in the average number of passengers per mile of track. This is apparently due to the fact that as a rule the new trackage is in districts where the traffic is not so dense as in the old territory. The average number of passengers per mile of track shows a progressive gradation from 361,701 in 1907 and 399,058 in 1902 for Class A to 59,741 in 1907 and 59,790 in 1902 for Class E.

Although, as before noted, the average number of fare passengers per mile of track increased for the United States as a whole, it decreased for each of the class groups. There was, moreover, a decrease in the average for each class in the North Central division, and with the exception of the small roads of Class E, a decrease in the North Atlantic and Western divisions, while in the South Atlantic and South Central

divisions there was an increase in the average for each class with the exception of Class D of the South Atlantic. That is, as a rule, in the North Atlantic and North Central and Western states the activity in the development of electric lines was greater than in the South Atlantic and South Central states. In the states of the latter divisions the increase in traffic was large and proportionately greater than the growth in track mileage.

Traffic of companies, classified according to kind of system and character of service.—The chief traffic statistics are given in Table 60 for companies, classified both according to kind of system and to character of service. The first classification aims to give the group of electric elevated and subway railways in comparison with all other electric railways or surface roads, and the second classification, a comparison of the groups of selected interurban roads, selected small urban roads, and all other railways.

TABLE 60.—TRAFFIC OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of operating companies.....	945	6	939	80	100	795
Miles of track.....	34,403.56	420.40	33,983.16	5,557.11	540.09	28,275.76
Number of fare passengers.....	7,441,114,508	638,653,072	6,802,461,436	303,238,680	34,456,606	7,113,419,322
Number of transfer passengers.....	2,091,966,258	5,051,921	2,086,914,337	37,545,285	1,208,294	2,053,212,679
Fare passengers per mile of track.....	² 216,522	³ 1,514,866	⁴ 200,398	54,470	43,519	⁵ 251,903
Passenger-car mileage.....	1,583,831,199	143,268,247	1,440,562,952	100,791,812	8,301,891	1,474,677,236
Fare passengers per car mile.....	4.70	4.44	4.72	3.01	2.92	4.82
Mileage of express, freight, mail, etc., cars.....	33,900,101	366,208	33,533,893	6,095,725	148,999	27,654,377
Total car mileage.....	1,617,731,300	143,634,475	1,474,099,825	106,887,537	8,450,890	1,502,331,903
Car miles per mile of track.....	⁷ 47.022	⁸ 342,305	⁹ 43,604	19,200	15,179	⁷ 53,173

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Includes 96,308,157 free passengers.

⁴ Exclusive of 1 company with 15 miles of track which did not report fare passengers (an exclusively freight road) and 22.05 miles of track not operated.

⁵ Exclusive of 0.79 mile of track not operated.

⁶ Exclusive of 1 company with 15 miles of track which did not report fare passengers (an exclusively freight road) and 21.26 miles of track not operated.

⁷ Exclusive of 22.05 miles of track not operated.

⁸ Exclusive of 21.26 miles of track not operated.

The group of electric elevated and subway railways, though numerically small, represents a relatively large proportion of the passenger traffic. While the group had but 1.2 per cent of all trackage, it handled 8.5 per cent of all fare passengers and had an average car mileage per mile of track eight times that of the average for all other roads. Since the operations of this small group of roads were carried on in districts of the highest-traffic density in the cities of New York and Chicago, the average number of fare passengers per mile of track for such roads was large, amounting to 1,514,866, or over seven times the average for the electric surface railways.

The number of fare passengers per car mile necessarily represents the average for all service. The statistics do not permit of a showing either of the maxi-

mum number of fare passengers per car mile during hours of heavy travel or of the minimum during hours of light travel. It would perhaps be expected that the congested condition of traffic on the electric elevated and subway lines, particularly those of the New York companies, during the rush hours of morning and evening, would cause a large average for the number of fare passengers per car mile, but the average for such companies was only 4.44, which is less than the average for all companies. Apparently the congestion of traffic during rush hours is to a large extent balanced by lightness of traffic during intermediate periods.

In the classification by character of service, the group of selected small urban roads had the least number of fare passengers per mile of track operated and

the least number of fare passengers per car mile. As both the selected interurban and the small urban roads operated in rural and urban districts of low-traffic density, the number of fare passengers per mile of track was low for each group, namely, 54,470 for the interurban group and 43,619 for the small urban lines, as against an average of 216,522 for all roads.

In the case of the number of fare passengers and the number of fare passengers per car mile, the statistics for interurban lines are not strictly comparable with the statistics for urban roads on account of the difference in the methods used in counting fare passengers. Some interurban roads follow the practice of steam railroads and count passengers by the trip, while others use the zone method. The latter method gives results comparable with the returns for urban roads, while the former does not. This difference in the methods of counting is reflected in the difference in the average fare per passenger for the selected interurban lines (8.4 cents) and the average fare per passenger for all roads (5.15 cents). (See Table 68.)

Car hours.—The car hour as a unit for comparative statistics for electric railways has grown greatly in favor, especially with larger companies. At the census of 1902 only 390, or 47.7 per cent, of the 817 operating companies reported the use of the car-hour unit, the companies using it carrying 45.6 per cent of the fare passengers, while in 1907, 734, or 77.7 per cent, of the 945 companies employed it, these companies carrying 86 per cent of the fare passengers. The car-hour unit has many advantages over the car-mile unit as a means of measuring railway operations.¹

¹ While there may be many units for special purposes, there are but one or two that can be used in a broad way. Of them all, the car hour at the present time comes closest to satisfaction, and it seems certain that only the most radical change in operating conditions can ever weaken its value.

In few words, the car hour is simply the hours the cars are out of the barns in service, and includes all time they are held by blockades or other causes. It is based upon the principle that but little of the operating expense can be stopped or even checked when a day has started, and that if most of the cars are blocked, the expense in large degree will be continued even though the earnings may wholly cease. And it is right that a unit should continue, because operating efficiency requires it should.

This is a point where car mileage is not equal to its test. For in a blockade the mileage ceases, the car has stopped, but the car hour (the car being away from the barn and under expense) keeps on. The car mile would protect the earnings, as the earnings have stopped with the car. But it is not so fair to the expenses, which must show a high cost per car mile, as they have not ceased for a moment even if the mileage has.

Another point in favor of the car hour is that it absorbs the difference in speed. To the car mile, a mile is a mile, and that is all there is to it—but to the car hour, if the car may be run twice as fast and earn twice as much by doubling the trips, it gains that much in earning efficiency per hour, and it should, but the car mile would show no gain from the increased speed.

No method was employed that was at all satisfactory to arrive at the average speed of a line until the car hour was used, to divide into the car miles run.

* * * The idea of a general unit to be applied to all purposes is not yet attained, nor is it liable to be; probably the most generally useful unit to-day is the car hour, with others suitable to special needs.—*Electric Railway Accounting*, W. B. Brockway, 1906.

Table 61 gives the car-hour statistics for the roads reporting car hours for 1907 and 1902.

TABLE 61.—Car-hour statistics: 1907 and 1902.

	1907	1902
Number of operating companies reporting car hours.....	734	390
Car hours, total.....	151,338,944	65,979,342
Passenger cars.....	148,678,032	65,813,287
Express, freight, mail, etc., cars.....	2,660,912	466,055
Number of fare passengers for companies reporting passenger-car hours.....	6,401,840,576	2,176,846,550
Fare passengers per passenger-car hour.....	43.06	33.28

The passenger-car miles of the companies reporting car hours was 1,345,000,289 in 1907 and 554,586,711 in 1902. A computation of the average passenger-car miles per car hour gives an average speed of 9.05 miles for 1907 as compared with 8.48 miles for 1902. These averages of course are based on car miles traveled during the entire time the cars were in service, including nonrunning time due to blockades or other causes, and do not therefore give an idea of the average speed at which cars travel under normal conditions.

Fare passengers per car hour.—The number of fare passengers per car hour shows an increase from 33.28 in 1902 to 43.06 in 1907, but this apparently large increase is, to a considerable degree, due to the fact that the car-hour unit was used and car-hour figures reported in 1907 by several companies in dense urban districts that did not report such figures in 1902. For example, the Manhattan Railway Company (elevated) of New York did not report the use of the car-hour unit in 1902, while in 1907 this unit was reported by the Interborough Rapid Transit Company for all of its traffic, including that of its lessor, the Manhattan Railway Company.

The method of counting fare passengers, i. e., by trip or by zone, affects the statistics, and in some cases the car hours are computed only for such time as the cars were actually in motion, rather than for the time the cars were out of the barn. A very high average number of fare passengers per car hour in one case led to inquiry and was explained as being due largely to the fact that passengers had been counted by 5-cent zones and that car hours had been reported only for actual running time.

Thirty-six of the 50 companies comprising the group of selected interurban roads reported both car miles and car hours. These 36 companies operated 4,253.30 miles of track, carried 228,796,680 fare passengers, and reported 74,508,257 car miles and 6,762,854 car hours; they had, therefore, an average speed of 11 miles per hour, 53,793 fare passengers per mile of track, 3.07 fare passengers per car mile, and 33.83 fare passengers per car hour.

Accidents.—The census schedule required each railway company to report separately the numbers of passengers, employees, and other persons killed and the numbers injured during the year. The class "Other persons" includes pedestrians and persons riding in vehicles that came in collision with cars. It is to be noted, also, that the numbers reported include all persons injured in connection with the operation of the power plant and the rolling stock, or in line construction. The character or degree of the injury was not considered in answering the inquiry. Each company was requested to report all accidents of which they had made record during the year.

The number of persons killed by street and electric railways in 1907 and 1902 is shown in the following table:

TABLE 62.—Persons killed by street and electric railways: 1907 and 1902.

CLASS.	1907	1902 ¹	Per cent of increase.
Number of persons killed, total.....	2,411	1,218	97.9
Passengers.....	547	265	106.4
Employees.....	297	122	143.4
Other persons.....	1,567	831	88.6
Number of car miles per person killed.....	670,979	939,368	28.6
Number of passenger-car miles per passenger killed.....	2,895,487	4,226,800	31.5

¹ Exclusive of 4 companies which failed to furnish information concerning accidents.

² Decrease.

The relative increase in the numbers killed, largely exceeding, as it does, the relative gains in number of passengers, car mileage, or electric-railway business in general, is startling. The increase in the number of deaths by accident shows most plainly in the decreased average number of car miles per person killed and in the decreased average number of passenger-car miles per passenger killed. In this connection it is interesting to consider the amount paid by street-railway companies for damages and legal expenses in connection with damage suits or settlements. This expenditure increased from \$9,395,545 in 1902 to \$18,176,305 in 1907, or 93.5 per cent, a rate almost equal to the rate of increase in number of persons killed.

Much the larger proportion of persons reported as killed at both censuses were pedestrians or persons riding in vehicles which came in collision with cars, such persons being classed in the table as "Other persons." In 1902, 68.2 per cent of the total number of persons killed were "Other persons," 21.8 per cent were passengers, and 10 per cent were employees, as compared with 65 per cent "Other persons" in 1907, 22.7 per cent passengers, and 12.3 per cent employees. This shows a slight increase in the proportion of passengers killed in 1907 and an increase in the proportion of employees killed, and a decrease in the proportion of killed in the "Other persons" class.

The following tabular statement gives the number of persons injured as reported at the censuses of 1907 and 1902:

Persons injured by street and electric railways: 1907 and 1902.

CLASS.	1907	1902
Total.....	1118,209	147,429
Passengers.....	66,721	26,680
Employees.....	8,937	3,099
Other persons.....	42,381	17,040

¹ Includes 210 persons not classified by class.

² Exclusive of 4 companies which failed to furnish information concerning accidents.

In 1902, 1 company, with 1,323 accidents, failed to distinguish those killed from those injured, and they were all included in the injured class. In the same year 3 companies, with 23 persons killed and 1,983 injured, reported accidents to passengers and employees under "Other persons," and 1 company, with 12 persons killed and 656 injured, reported "Other persons" under "Passengers."

There is no uniformity in the practice of companies in deciding what constitutes an injury. In some cases every mishap reported by the car men, no matter how trifling, if occurring in the neighborhood of a car, is entered as an injury. Therefore many wholly unimportant accidents are included, and it is possible that such accidents form the larger portion of the total number of accidents in the case of the persons reported as injured at both censuses. Hence no special deductions can be based upon the figures for the number of persons injured.

Table 63 gives, for street and electric railways and for steam railroads, the number of passengers killed per 100,000,000 passengers carried, and the number of employees killed per 1,000 employees.

TABLE 63.—Fatality rates for passengers and employees, street and electric railways and steam railroads: 1907 and 1902.

CLASS.	1907	1902
Passengers killed per 100,000,000 passengers carried:		
Street and electric railways.....	7.4	5.6
Steam railroads.....	69.8	53.1
Employees killed per 1,000 employed:		
Street and electric railways.....	1.3	0.9
Steam railroads.....	2.7	2.5

The percentages of increase in number of passengers killed per unit number carried are approximately the same for both classes, being 32.1 for electric railways and 31.5 for steam railroads. In the case of employees killed, however, the proportionate increase for street and electric railways (44.4 per cent) greatly exceeds that for steam railroads (8 per cent), although the ratio of killed to number employed on electric railways is still a trifle less than one-half that for steam railroads.

Another interesting view of the figures may be gained by considering the average number of fare

passengers carried per passenger killed and the average number of employees per employee killed.

TABLE 64.—Average number of passengers per passenger killed, and average number of employees per employee killed, by street and electric railways and steam railroads: 1907 and 1902.

	AVERAGE NUMBER OF FARE PASSENGERS PER PASSENGER KILLED.		AVERAGE NUMBER OF EMPLOYEES PER EMPLOYEE KILLED.	
	1907	1902	1907	1902
Street and electric railways.....	13,403,500	18,015,994	746	1,154
Steam railroads.....	1,432,631	1,983,706	309	401

A decrease in the number of passengers carried per passenger killed or in the number of employees per employee killed represents of course an increase in mortality risk. Cognizance should be taken of the relatively great average length of journey for passengers on steam railroads. In the case of employees the figures are on the same footing.

The numbers reported killed, for companies, classified according to income from railway operations, according to kind of system, and according to character of service, are given in Table 65, for 1907 and 1902.

TABLE 65.—Persons killed, by groups of companies: 1907 and 1902.

CLASSIFICATION GROUP.	NUMBER OF PERSONS KILLED.			
	1907	1902	Percent of total.	
			1907	1902
Total, all operating companies.....	2,411	1,218	100.0	100.0
Companies, classified according to income from railway operation:				
(A) \$1,000,000 and over.....	1,066	600	60.1	56.7
(B) \$500,000 but less than \$1,000,000.....	223	96	9.2	7.9
(C) \$250,000 but less than \$500,000.....	214	130	8.9	10.7
(D) \$100,000 but less than \$250,000.....	173	121	7.2	9.9
(E) Less than \$100,000.....	135	181	5.6	14.9
Companies, classified according to kind of system:				
Electric elevated and subway railways ¹	64	.....	2.7	.....
Electric surface railways ²	2,347	.....	97.3	.....
Companies, classified according to character of service:				
Selected interurban lines.....	220	.....	9.1	.....
Selected small urban roads.....	8	.....	0.3	.....
All other railways.....	2,183	.....	90.5	.....

¹ This classification not made in 1902.

² Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

³ Includes the statistics for the few railways not operated by electricity.

In order to make an intelligent comparison of the number of persons killed as distributed in the different groups, it is necessary to consider the statistics in connection with the traffic. The number of fare passengers carried affords the best basis for traffic comparisons. Although the great majority of persons killed were persons other than passengers or employees, yet the number of passengers carried is an index of density of population, and density of population is obviously a controlling factor in the fatality rate. The number killed can thus be measured by a fare-passenger unit and the relative mortality standing of the different groups of companies ascertained.

Table 66 shows, for each group of companies, the percentage of the total number of fare passengers covered by the group and the number of persons killed per 100,000,000 fare passengers carried.

TABLE 66.—Per cent of traffic (on basis of fare passengers), and number of persons killed per unit of fare passengers, by groups of companies: 1907 and 1902.

CLASSIFICATION GROUP.	PER CENT OF TOTAL NUMBER OF FARE PASSENGERS.		PERSONS KILLED PER 100,000,000 FARE PASSENGERS.	
	1907	1902	1907	1902
Total, all operating companies.....	100.0	100.0	32.4	25.6
Companies, classified according to income from railway operations:				
(A) \$1,000,000 and over.....	75.6	70.3	25.6	25.5
(B) \$500,000 but less than \$1,000,000.....	7.9	8.1	38.1	24.7
(C) \$250,000 but less than \$500,000.....	6.1	7.3	47.5	37.2
(D) \$100,000 but less than \$250,000.....	6.1	7.0	38.2	36.0
(E) Less than \$100,000.....	4.4	7.3	41.4	52.8
Companies, classified according to kind of system:				
Electric elevated and subway railways ¹	8.5	.....	10.1	.....
Electric surface railways ²	91.5	.....	34.5	.....
Companies, classified according to character of service:				
Selected interurban lines.....	4.1	.....	72.6	.....
Selected small urban roads.....	0.3	.....	32.7	.....
All other railways.....	95.6	.....	30.7	.....

¹ This classification not made in 1902.

² Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

³ Includes the statistics for the few railways not operated by electricity.

A comparison of the proportions of the total number of fare passengers carried with the proportion of the total number of persons killed (Table 65) for the several groups shows that in Class A the percentage of the total number of persons killed was less than the proportionate amount of traffic, both in 1907 and in 1902, and that in Class B in 1902 the percentage of killed was less. In Class B for 1907 and in Classes C, D, and E at both censuses the proportions for the killed were in excess of the respective proportions for traffic. The number killed by the electric elevated and subway lines was relatively small when compared with the traffic of those lines, while for the selected interurban lines the proportion was high, since the elevated and subway group of companies with 8.5 per cent of the traffic had but 2.7 per cent of the total number of persons killed, while the group of selected interurban lines with only 4.1 per cent of the traffic had 9.1 per cent of the killed.

In each of the classes of companies, according to income, with the exception of Class E, the number killed per 100,000,000 passengers carried increased. The largest increase in ratios was in Class B, for which there was an increase of 54.3 per cent. Class A was second in this respect, with an increase of 44.4 per cent in the proportion. The number killed in the group of electric elevated and subway lines per unit of traffic was less than one-third of the average for the United States, while the number for the group of selected interurban roads was more than twice the total average.

Table 67 is a comparative summary of persons killed, by states and geographic divisions, for 1907 and 1902.

TABLE 67.—PERSONS KILLED, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	NUMBER OF PERSONS KILLED.				STATE OR TERRITORY.	Census.	NUMBER OF PERSONS KILLED.			
		Total.	Passen- gers.	Em- ployees.	Other persons.			Total.	Passen- gers.	Em- ployees.	Other persons.
United States.....	1907 1902	2,411 1,218	547 265	297 122	1,567 831	North Central division—Continued.					
North Atlantic division.....	1907 1902	1,008 532	212 125	129 57	665 350	Michigan.....	1907 1902	96 55	19 7	10 4	67 44
Maine.....	1907 1902	4 4	1 1	.....	3 3	Wisconsin.....	1907 1902	54 12	13	8	33 12
New Hampshire.....	1907 1902	2 2	1 .....	.....	1 2	Minnesota.....	1907 1902	20 11	.....	3	20 8
Vermont.....	1907 1902	(1) 2	1 .....	.....	1	Iowa.....	1907 1902	15 19	2 5	2 3	11 11
Massachusetts.....	1907 1902	98 82	23 18	14 9	61 55	Missouri.....	1907 1902	105 116	30 16	8 10	67 90
Rhode Island.....	1907 1902	21 17	1	2 2	18 15	North and South Dakota.....	1907 1902	(1) (1)	.....	.....	.....
Connecticut.....	1907 1902	51 14	9 1	8 3	34 10	Nebraska.....	1907 1902	15 3	5 1	1	9 2
New York.....	1907 1902	444 178	87 61	67 30	290 87	Kansas.....	1907 1902	8 1	2	1	5
New Jersey.....	1907 1902	112 47	19 6	11 4	83 37	South Central division.....	1907 1902	134 85	40 10	15 11	79 64
Pennsylvania.....	1907 1902	273 186	71 37	27 9	175 140	Kentucky.....	1907 1902	14 9	2 1	2 1	10 7
South Atlantic division.....	1907 1902	141 49	27 9	15 7	99 33	Tennessee.....	1907 1902	22 21	11 3	4 6	7 13
Delaware.....	1907 1902	2 6	1 .....	.....	2 5	Alabama.....	1907 1902	22 15	15 1	1	7 13
Maryland and District of Columbia.....	1907 1902	52 10	11 3	6 2	35 5	Mississippi.....	1907 1902	8 2	1	2 1	5 1
Virginia.....	1907 1902	34 9	9 1	6 1	19 7	Louisiana.....	1907 1902	31 27	.....	1	20 20
West Virginia.....	1907 1902	13 12	3 2	1 2	9 8	Arkansas.....	1907 1902	9 4	3 2	3 1	3 1
North Carolina.....	1907 1902	7 2	.....	1	7 1	Oklahoma.....	1907 1902	(1) (1)	.....	.....	.....
South Carolina.....	1907 1902	5 4	2 1	.....	3 3	Texas.....	1907 1902	28 7	8 2	3 1	17 4
Georgia.....	1907 1902	24 3	2	2 1	20 2	Western division.....	1907 1902	278 63	68 17	41 ?	169 44
Florida.....	1907 1902	4 3	.....	.....	4 2	Montana.....	1907 1902	1 2	.....	.....	1 2
North Central division.....	1907 1902	832 489	200 104	97 45	535 340	Colorado.....	1907 1902	23 10	6 2	4 1	13 7
Ohio.....	1907 1902	190 116	47 19	26 9	117 88	Washington.....	1907 1902	38 1	5	11	22 1
Indiana.....	1907 1902	73 20	11 2	9 3	53 15	Oregon.....	1907 1902	9 9	2 3	1 1	6 5
Illinois.....	1907 1902	276 136	71 54	32 12	173 70	California.....	1907 1902	199 87	51 9	23	126 20
						All other Western states and terri- tories. ²	1907 1902	8 4	4 3	2	2 1

¹ None reported.² Includes states and territories as follows: 1907—Arizona, Idaho, Nevada, New Mexico, and Utah; 1902—Idaho, New Mexico, and Utah.

The most marked feature is the relative increase in the numbers for the states of the Western division. The number for this division formed 11.5 per cent of the total in 1907 as compared with 5.2 per cent of the total in 1902. The rate in the states of the South Atlantic division also increased slightly, from 4 per cent of the total in 1902 to 5.8 per cent of the total in 1907. In all the other divisions there was a decrease.

*Fares.*¹—The census schedule for 1907 contained

no inquiry concerning fares, but the general average that can be obtained by the division of the total income from passenger service by the total number of fare passengers carried during the year is interesting, although it gives little idea of the prevailing rates.

The average receipt per fare passenger for the street and electric railways in 1902 was 4.94 cents, compared with an average receipt per passenger for the steam roads of 60.47 cents. In 1907 the average receipt per fare passenger was 5.15 cents for the electric roads and 64.6 for the steam roads.

¹ See also Ch. II, Part II.

TABLE 68.—Average fare per passenger, by groups of companies for street and electric railways, and for steam railroads: 1907 and 1902.

[Obtained by the division of the total income from passenger service by the total number of fare passengers carried.]

CLASSIFICATION GROUP.	AVERAGE FARE PER FARE PASSENGER (CENTS).	
	1907	1902
Street and electric railways, total ¹	5.15	4.94
Companies, classified according to income from railway operations:		
(A) \$1,000,000 and over.....	4.99	4.84
(B) \$500,000 but less than \$1,000,000.....	5.57	4.98
(C) \$250,000 but less than \$500,000.....	5.85	5.40
(D) \$100,000 but less than \$250,000.....	5.65	5.31
(E) Less than \$100,000.....	5.54	5.14
Companies, classified according to kind of system: ²		
Electric elevated and subway railways.....	4.97	
Electric surface railways.....	5.17	
Companies, classified according to character of service: ³		
Selected interurban lines.....	8.40	
Selected small urban roads.....	5.27	
All other railways.....	5.01	
Steam railroads ⁴	64.61	60.47
Average journey per passenger, miles.....	31.72	30.30
Average rate per mile, cents.....	2.01	1.99

¹ Exclusive of reports for 6 companies in 1907 and 18 companies in 1902 which failed to furnish financial data.² This classification not made in 1902.³ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.⁴ Includes the statistics for the few railways not operated by electricity.⁵ Statistics of railways, annual reports of Interstate Commerce Commission.

Surprising as it may seem, there was an increase in the average fare per passenger in every income class of companies, from 1902 to 1907, the greatest gain, 0.59 cent, occurring in the second class (B). The highest average fare prevailed in the middle class (C), and the lowest in the largest class (A). The exchange of passengers between companies, which is most common in the larger cities and among the large companies, operates to reduce the average fare received.

The average fare for the selected interurban lines was not so high as might be expected, but many of them do a mixed urban and interurban business and collect fares upon the zone basis. On the other hand, the average fare for the selected small urban roads (5.27 cents) was slightly higher than the average for all railways. Several of the small roads operated between closely connected towns, while for others the line extended to parks or other points outside of the city limits, a double fare being charged.

Mail, express, and freight business.—The carriage of mail, express, and freight matter is a comparatively new but rapidly developing branch of interurban traffic.

TABLE 69.—INCOME FROM MAIL, EXPRESS, AND FREIGHT BUSINESS, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.¹

CHARACTER OF BUSINESS AND DIVISION.	1907			1902			PER CENT NUMBER OF COMPANIES REPORTING SPECIFIED BUSINESS FORM OF NUMBER REPORTING FINANCIAL DATA.		PER CENT OF INCREASE.		
	Number of operating companies reporting financial data.	Number of companies reporting specified business.	Amount of income from specified business.	Number of operating companies reporting financial data.	Number of companies reporting specified business.	Amount of income from specified business.	1907	1902	Number of companies reporting financial data.	Number of companies reporting specified business.	Amount of income from specified business.
Mails carried for Government.											
United States.....	939	365	\$646,575	799	286	\$432,080	41.0	35.8	17.5	34.6	49.6
North Atlantic.....	263	170	289,234	256	145	200,735	66.6	60.7	2.5	17.2	44.1
South Atlantic.....	100	45	59,924	75	24	40,999	45.0	32.0	33.3	37.5	27.5
North Central.....	293	115	233,451	235	83	145,621	29.2	35.3	24.7	28.6	60.3
South Central.....	90	28	19,121	66	11	10,656	31.1	16.7	36.4	154.5	79.4
Western.....	91	27	44,845	67	23	28,066	29.7	34.3	35.8	17.4	60.8
Express business.											
United States.....	939	229	1,560,803	799	117	401,672	24.4	14.6	17.5	98.7	288.6
North Atlantic.....	265	103	780,341	256	65	125,419	28.2	18.3	2.5	58.5	522.2
South Atlantic.....	100	15	76,333	75	4	13,187	15.0	6.3	23.3	278.0	478.0
North Central.....	293	67	579,355	235	38	253,060	29.7	16.2	24.7	128.9	128.9
South Central.....	90	7	9,264	66	3	6,243	7.8	4.5	35.4	133.3	48.4
Western.....	91	17	115,509	67	7	3,773	18.7	10.4	25.8	142.9	2,961.5
Freight business.											
United States.....	939	342	5,231,215	799	195	1,088,007	36.4	24.4	17.5	75.4	403.9
North Atlantic.....	265	121	1,064,075	256	79	416,327	33.2	22.2	2.5	53.2	156.4
South Atlantic.....	100	41	210,613	75	33	74,735	41.0	44.0	33.3	24.2	181.8
North Central.....	293	120	2,461,039	235	63	326,619	41.0	28.8	24.7	90.5	622.9
South Central.....	90	22	168,301	66	8	41,250	24.4	12.1	36.4	175.0	307.9
Western.....	91	39	1,423,168	67	12	178,957	41.8	17.9	35.8	216.7	696.3

¹ Exclusive of 6 companies in 1907 and 18 in 1902 which failed to furnish financial data.

In 1907, 385 companies reported that they carried mails for the Federal Government, and that they received \$646,575 for the service. In 1902, 286 companies reported that they engaged in the same service and received a revenue of \$432,080. Thus there was an increase of 34.6 per cent in number of companies and 49.6 per cent in amount of income. The North

Atlantic states were represented both by the largest number of companies carrying mail and the largest revenue therefrom at both censuses, but the South Central states had the largest percentage of gain in number of mail-carrying companies and in income. There were 6 companies in 1907 that realized over \$30,000 each from their mail contracts, and in the

case of two the amount exceeded \$40,000. The District of Columbia was the only civil division in 1907 where every railway company carried mail for the Government. Rhode Island had the next largest proportion—5 mail-carrying companies out of 6 in the state. In 16 states the railways carrying mail constituted at least one-half of the total number of operating companies in 1907 as compared with only 10 such states in 1902.

Although the number of railways engaged in carrying express matter was considerably less than the number of those carrying mail, the amount of income from express traffic in 1907 was over twice that received for hauling mail matter.

Freight traffic on electric railways made rapid strides during the five years between the censuses. The number of companies reporting a freight business increased by 75.4 per cent and the income, by 403.9 per cent. The bulk of the income from this class of service in 1907, 45.1 per cent of the total, was earned by the railways operating in the North Central division. In 1902 the North Atlantic division returned the largest proportion, 40.1 per cent, of the total freight income. The great development of interurban electric railways in Ohio, Indiana, Illinois, and Michigan between 1902 and 1907 is the chief cause of the change. The largest proportionate gain in freight traffic, as measured by income, occurred in the Western division, the increase for that division being from \$178,957 in 1902 to \$1,423,168 in 1907, or 695.3 per cent. This division also ranked second in gross income from freight business at the census of 1907.

The rate of gain in the total income from freight business for the United States, 403.9 per cent, approximates closely to that for express, freight, and mail cars, 408.9 per cent.¹

Of the 945 operating companies reporting in 1907, only 1—the St. Louis and Belleville of Illinois—was engaged exclusively in freight traffic. It reported 631 express, freight, and mail cars and 15 miles of track. There were 2 other roads reported at the census of 1907 which should be noted as exclusive freight roads—the American Railway Traffic Company of Brooklyn, N. Y., and the Illinois Tunnel Company of Chicago, Ill.—although, as previously stated,² they were not included in the general statistics for 1907. The former owned no track but operated cars over track of the Brooklyn Rapid Transit system for the removal of the city ashes, while the latter was engaged in express, freight, and mail traffic in subways under the city of Chicago.

Parks and pleasure resorts.—Amusement resorts for the purpose of attracting travel have become a prominent feature of electric-railway operations. At the census of 1902 the statistics presented were confined to the number of companies operating parks and the number of parks. At the present census the scope has been extended to show the investment made by electric-railway companies in pleasure parks, and the estimated number of visitors annually.

Table 70 presents the comparable statistics in regard to parks or pleasure resorts operated by electric-railway companies in 1907 and 1902.

¹ See p. 63.

² See p. 20.

TABLE 70.—NUMBER OF PARKS OR PLEASURE RESORTS, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	NUMBER OF OPERATING COMPANIES.		NUMBER OF COMPANIES REPORTING PARKS OR PLEASURE RESORTS.		NUMBER OF PARKS OR PLEASURE RESORTS.		PER CENT NUMBER OF COMPANIES REPORTING PARKS OR PLEASURE RESORTS FORM OF ALL OPERATING COMPANIES.		PER CENT OF INCREASE.		
	1907	1902	1907	1902	1907	1902	1907	1902	Number of companies.	Number of companies reporting parks or pleasure resorts.	Number of parks or pleasure resorts.
United States.....	945	817	357	249	467	332	37.8	35.4	15.7	23.5	32.7
North Atlantic.....	370	361	134	115	183	140	36.2	31.9	2.5	16.5	30.7
South Atlantic.....	101	80	53	40	73	54	52.5	50.0	26.3	32.5	35.2
North Central.....	293	241	95	89	116	98	32.4	36.9	21.6	6.7	18.4
South Central.....	90	65	43	26	57	37	47.8	39.4	35.4	65.4	54.1
Western.....	91	69	32	19	38	23	35.2	27.5	31.9	68.4	65.2

Of the 817 operating companies in 1902, more than one-third, 35.4 per cent, reported one or more parks or resorts. In 1907 the proportion of companies reporting such parks had increased to 37.8 per cent. The number of parks increased from 1902 to 1907 by 115, or 32.7 per cent.

More than one-half of the operating companies in the states of the South Atlantic division and nearly one-half of those in the South Central division operated pleasure parks in 1907, while in the other divisions approximately one-third had these accessories for traffic. The percentages of increase in number of

parks in the states of the Western and the South Central divisions are noticeably large.

Table 71 gives the statistics for parks or pleasure resorts, by geographic divisions, for 1907.

TABLE 71.—STATISTICS OF PARKS OR PLEASURE RESORTS, BY GEOGRAPHIC DIVISIONS: 1907.

DIVISION.	Number of operating companies reporting parks or pleasure resorts.	Number of parks or pleasure resorts.	COST OR INVESTMENT IN PARKS OR RESORTS.			RENTAL OF HIRED PARKS OR RESORTS.		ESTIMATED NUMBER OF VISITORS.		
			Number of parks or resorts represented.	Amount.	Average cost or investment per park or resort.	Number of parks or resorts represented.	Amount.	Number of parks or resorts represented.	Number of visitors.	Average number of visitors per park or resort.
United States.....	357	467	374	\$13,671,402	\$36,555	80	\$46,522	404	51,327,386	127,996
North Atlantic.....	124	183	128	5,389,334	42,104	40	17,162	130	21,492,653	143,284
South Atlantic.....	53	73	66	2,131,012	32,288	12	4,690	68	7,186,329	105,387
North Central.....	111	116	97	3,163,963	32,618	24	20,930	105	11,061,577	105,346
South Central.....	43	57	50	753,788	15,076	10	2,940	48	6,434,107	134,044
Western.....	22	28	23	2,233,275	67,675	3	800	30	5,172,910	172,430

The amounts reported as paid for rental of parks represent in most cases the rental of ground. In many cases companies reported both rental and investment, the land being leased and the improvements and fittings made by the company.

The large amount invested in pleasure parks shows the importance attached to them as agencies for promoting traffic. In a number of individual cases the investment exceeded \$100,000, and in three cases it amounted to \$500,000 or more. The largest average investment per resort is shown for the Western division and the largest rental for the North Central, while the

sum of the items, investment and rental, is largest for the North Atlantic division.

The number of visitors reported is the result of estimates made by the companies. As a rule, each visitor is a patron of the road both going to and returning from the park or resort, and can be said to represent two fare passengers, and in some cases four, since frequently the parks or resorts are located some distance from the urban center and a second fare is charged for the distance traveled outside of the city limits. Thus it can probably be said that the visitors reported represent more than 100,000,000 fare passengers.

CHAPTER VI

CAPITALIZATION.

Basis of statistics.—The capitalization of street and electric railway companies consists of their capital stock and funded debt. The capital stock of many companies is divided into two classes of securities, common stock and preferred stock, which, as a rule, differ from each other only in the preference given the latter with respect to dividends and with respect to the distribution of assets in case of liquidation, when the preferred shares frequently have to be paid in full before the holders of the common shares receive anything. The capital represented by funded debt takes a variety of forms, and the dividing line between funded debt and floating debt is not sharply defined. In general, funded debt is indebtedness evidenced by obligations issued in a group by a corporation, bearing a fixed rate of interest, and usually secured by a mortgage on property of the company. The classification of funded debt which is adopted by the Interstate Commerce Commission for steam railroads, and which applies equally well to street and electric railways, is as follows:

Mortgage bonds which evidence indebtedness secured by a lien on the road and its franchises.

Income bonds, or bonds which are a lien on revenue only, or which, if a lien on the road and its franchises, can claim payment of interest only when earned.

Miscellaneous funded obligations, such as collateral trust bonds, etc., which comprise funded obligations that are liens on specified property, and therefore distinct from liens on the road and its franchises.

The term "debentures," sometimes used, does not have a fixed meaning. In general, it is used to apply to corporate obligations bearing a fixed rate of interest which are not secured by a mortgage. Sometimes a specific fund or property is pledged by the debentures, in which case they are usually termed "mortgage debentures."

There are other classes of securities which are intermediate between funded debt and floating debt, notably receivers' certificates, which partake of the nature of bonded indebtedness, as they take precedence over funded and so-called current liabilities; but as they are necessarily short-lived and are either soon paid or funded, they are not treated as a part of the funded debt.

Increase since 1902.—The following table summarizes the statistics for capital stock, funded debt, dividends, and interest reported by street and electric railways at the censuses of 1907 and 1902:

TABLE 72.—*Capital stock, funded debt, dividends, and interest of operating and lessor companies combined: 1907 and 1902.*

	1907	1902	Percent of increase.
Number of companies.....	1,230	980	25.5
Capital stock:			
Authorized, par value.....	\$2,508,054,336	\$1,529,190,580	64.0
Common.....	2,098,895,736	1,355,920,056	54.8
Preferred.....	409,158,600	173,270,524	135.1
Outstanding, par value.....	2,097,708,856	1,315,572,960	59.5
Common.....	1,776,920,078	1,187,642,781	49.6
Preferred.....	320,788,780	127,930,179	150.8
Dividends, amount.....	54,485,274	23,039,171	64.9
On common stock.....	44,990,798	28,737,887	56.5
On preferred stock.....	9,524,478	4,301,284	121.4
Funded debt:			
Authorized, amount.....	2,322,720,837	1,341,429,727	73.2
Outstanding, amount.....	1,677,063,240	992,709,139	68.9
Interest.....	71,468,788	43,578,901	64.0
Total capitalization outstanding.....	3,774,772,096	2,308,282,009	63.5

¹ Exclusive of 6 companies which failed to report capitalization.

² Exclusive of 7 companies which failed to report capitalization.

Street and electric railways are operated under corporate ownership almost entirely, the exceptions being one municipal railway operated in Louisiana by the city of Monroe water, light, and traction department; one railway operated at Bismarck by the state of North Dakota; and a few railways owned and operated by individuals. In the case of the railways under state or individual ownership which reported no capital stock or bonds, the cash investment or floating debt¹ has been reported. For incorporated companies which had not yet issued stocks or bonds, the floating debt or the value of the investment has been included. The nature of the capitalization reported when other than capital stock or funded debt is noted in Table 183, which shows the capitalization for each company in detail.

Some form of capitalization was reported for each of the 1,236 operating and lessor companies in 1907, except the six electric divisions of steam railroads (see Table 86), while in 1902, 7 of the 987 companies did not report capitalization. The total amounts reported as the par value of outstanding common stock include \$4,536,820 for 1907 and \$525,404 for 1902, which represent cash investment, floating debt, etc., while the total amounts reported as funded debt include \$30,629,091 for 1907 and \$1,719,159 for 1902, which represent debt other than regular funded obligations.

The amount shown as interest on funded debt is the amount charged as a deduction from income in the

¹ See also p. 182.

income account, and therefore does not represent the full interest charge on the outstanding funded debt, as some companies charged part of the interest to construction account, while others defaulted entirely on interest payments. A full explanation of these conditions will be given in the analysis of the statistics as to dividends and interest.

The increase in capitalization is commonly referred to as an indication of the increase in railway construction. It is, however, but one of many factors which should be considered to indicate the extent of the development. The par value of the total outstanding capital stock and bonds reported for 1907 shows an increase of \$1,466,489,997, or 63.5 per cent, over the total for 1902, while the track mileage increased by 11,826.57 miles, or 52.4 per cent. Of these two factors, the increase in the miles of track is the more satisfactory indication of the extent of the actual increase in the electric-railway facilities. The large increase in the amount of the outstanding securities of the street and electric railways of the country from 1902 to 1907 (63.5 per cent) kept pace with the increase in passengers carried (63.3) and gross income (71.6).

The common stock formed the largest proportion of the total outstanding capitalization at both censuses, although this proportion decreased from 51.5 per cent in 1902 to 47.1 per cent in 1907. The preferred stock increased from 5.5 per cent of the total in 1902 to 8.5 per cent in 1907, and the funded debt, from 43 per cent in 1902 to 44.4 per cent in 1907.

The relative increase or decrease in capitalization is dependent upon so many factors and underlying causes that the subject can be treated only in a general way in the census statistics. Many of the causes which have operated to increase, relatively, the capitalization of street and electric railways during the past twenty-five years were stated at some length in the last census report on the industry.¹ While these causes have continued to be operative during the census period from 1902 to 1907, there are several others that have been more particularly active during the same period. These causes are (a) the large increase in the use of private rights of way attending the development of interurban lines; (b) the increased cost of construction due to heavier and larger track, power-plant and rolling-stock equipment; (c) the much larger proportion of investments that are not strictly connected with railway operations proper, and yet are represented in the capitalization, such as electric light and power plants, gas, water, and ice plants, and ferry, wharf, and terminal properties; and (d) the admittedly large increase in cost of materials, which

was not less than 20 per cent between the two census years.²

Another aspect of the increase in capitalization is found in the results of consolidation, and the reconstruction of track, rolling-stock, and power-plant equipment. Many roads, as they exist to-day, are consolidations of a large number of roads. The capitalization of a consolidated company may be determined by various causes. The market value of securities depends chiefly on the earning power of the road. Hence, if a railway entering a consolidation was earning large dividends, its stock would be taken in and carried at a figure well above its par value, and at least at its market value. The expense of financing consolidations, which includes expenditures for commissions to bankers and syndicates purchasing the securities of the constituent companies and underwriting or guaranteeing the new securities, also figures as a factor in the present capitalization of a consolidated road. And perhaps these conditions more than any other conditions have operated to swell the capitalization of all electric-railway companies.

The necessity of changing, improving, and even rebuilding both line and equipment to keep pace with the march of progress is another important factor to be considered. Some roads of thirty years' standing have witnessed changes from horsepower to cable and then from cable to electric power, and with few exceptions all roads whose existence goes back more than a quarter of a century have passed through the transition stage from horse to electric power. The amount of submerged capital due to these changes is enormous. Very few companies have charged off against investment account sufficient depreciation to cover the lost capital represented by these changes.

Current liabilities.—Undoubtedly a part of the current liabilities of many street and electric railways should be considered as capitalization in order to show the total obligations outstanding against the property. But it is impossible to determine what part of the current debts reported by the several companies has entered into the construction accounts. The schedule of inquiry used in 1902 called only for the following liability accounts in the balance sheet in addition to the capitalization of stocks and bonds, bills and accounts payable, interest due and accrued, dividends due, and sundries. In 1907 the further subdivisions of real-estate mortgages and floating debt (loans and notes) were required. These current liabilities amounted to \$461,248,533 in 1907 and \$252,145,435 in 1902, and constituted 12.2 and 10.9 per cent, respectively, of the total capitalization. Of the total for 1907, \$4,059,805

¹ See Report on Street and Electric Railways, 1902, p. 47 et seq.

² Bulletin 81, on wholesale prices, 1890 to 1908, Bureau of Labor, Department of Commerce and Labor, March, 1909.

represented real-estate mortgages and \$278,927,097 floating debt, and if it be assumed that all of this was used for construction and equipment purposes, it would give an aggregate of \$4,057,758,998 as the gross capitalization of the operating and lessor railway companies reported in 1907.

On account of the uncertainty existing in the current-liability accounts and their unstable nature, only the capitalization of stocks and bonds and deductions relating to capitalization statistics are included in the tables. But whenever a considerable floating debt was reported by a company, this fact is noted against the total capital stock and funded debt outstanding as appearing in Table 183.

The following statement shows the current liabilities reported at both censuses in comparison with the capitalization. It shows that the rate of increase for the current liabilities was much greater than that for capitalization, and probably indicates a change in the policy of financing new projects and improvements to old ones.

Capitalization and current liabilities: 1907 and 1902.

	1907	1902	Per cent of increase.
Capitalization, total.....	\$3,774,772,096	\$2,308,252,099	63.5
Capital stock outstanding.....	2,067,708,856	1,315,572,960	56.9
Funded debt outstanding.....	1,677,063,240	992,709,139	68.9
Current liabilities, total.....	461,244,533	252,145,435	82.9
Real-estate mortgages.....	4,056,806	(1)	
Floating debt (loans and notes).....	278,927,097	(1)	
Bills and accounts payable.....	91,241,278	101,704,634	* 10.3
Interest due and accrued.....	25,317,196	14,497,670	74.6
Dividends due.....	3,009,390	2,543,823	53.7
Sundries.....	57,793,767	133,399,306	* 56.7

* Not reported separately; probably included in "bills and accounts payable" and "sundries."

* Decrease.

Capitalization of operating and lessor companies.—The total capitalization, dividends, and interest reported for street and electric railways at the census of 1907 is shown in the following table, classified so as to indicate the amounts reported respectively by operating companies and lessor companies:

TABLE 73. CAPITAL STOCK, FUNDED DEBT, DIVIDENDS, AND INTEREST OF OPERATING AND LESSOR COMPANIES, RESPECTIVELY: 1907.

	Total.	Operating companies.	Lessor companies.	PER CENT OF TOTAL.	
				Operating companies.	Lessor companies.
Number of companies.....	11,230	1,909	291	76.3	23.7
Capital stock:					
Authorized, par value.....	\$2,508,054,336	\$1,884,798,078	\$623,256,260	75.1	24.9
Common.....	2,098,885,736	1,528,264,576	570,621,160	72.8	27.2
Preferred.....	409,168,600	356,533,500	52,635,100	87.1	12.9
Outstanding, par value.....	2,067,708,856	1,543,269,092	524,439,834	73.6	26.4
Common.....	1,776,920,076	1,270,580,322	506,339,754	71.5	28.5
Preferred.....	320,788,780	272,678,680	48,110,100	85.0	15.0
Dividends, amount.....	54,685,274	26,454,732	28,030,542	48.6	51.4
On common stock.....	44,260,796	19,263,246	25,007,551	42.4	57.2
On preferred stock.....	9,324,478	7,191,487	2,132,991	75.5	24.5
Funded debt:					
Authorized, amount.....	2,322,720,837	1,788,187,137	534,533,700	77.0	23.0
Outstanding, amount.....	1,677,063,240	1,208,007,372	469,055,868	75.6	24.4
Interest.....	71,468,788	53,706,525	17,762,263	75.2	24.8
Total capitalization outstanding.....	3,774,772,096	2,811,876,374	962,895,722	74.5	25.5

* Exclusive of 6 companies which failed to report capitalization.

Full statistics as to the capitalization of these two classes of companies were not presented separately in the last census report. It was stated in that report, however, that of the total outstanding capitalization in 1902, \$532,813,318 represented the securities of lessor companies, \$332,603,890 of this amount representing capital stock and \$200,209,428 representing bonds. These amounts constituted 23.1, 25.3, and 20.2 per cent, respectively, of the totals reported for all companies at that census as compared with corresponding percentages of 25.5, 26.4, and 24.4 for 1907. From this it is evident that so far as capitalization is concerned there was a slight increase in the importance of the nonoperating railways during the five years which elapsed between the two censuses. The changes in operating management, however, which have previously been referred to, affect to a certain extent the showing for the two classes of companies at different periods.

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Capitalization and cost of construction.—In making their returns for the balance-sheet inquiry on the schedule the majority of the companies reporting inserted an amount for the cost of construction, equipment, and real estate that practically equaled the par value of their outstanding stocks and bonds.¹ There were, of course, many exceptions to this rule, due largely to the practice followed by some companies of reinvesting surplus earnings in plant and equipment without a corresponding increase in capitalization. The following table compares the net capitalization² reported by both operating and lessor companies with the cost of construction, equipment, and real estate reported in the balance-sheet inquiry at the censuses of 1907 and 1902:

¹ See also p. 180.

² The deductions used to arrive at the net capitalization are stated on p. 103.

TABLE 74.—*Net capitalization and cost of construction, equipment, and real estate. 1907 and 1902.*

	1907	1902	Per cent of increase.
Net capitalization.....	\$3,400,107,899	\$2,117,619,302	60.6
Cost of construction, equipment, and real estate.....	3,637,008,708	2,167,634,077	67.8

* Exclusive of capitalization to the amount of \$38,163,800 for 13 companies which failed to report cost of construction, equipment, and real estate.

The two amounts approximate agreement more nearly than might be expected, the difference being proportionately greater in 1907 than in 1902. The net capitalization formed 97.7 per cent of the amount reported as cost of construction and equipment in 1902 and 93.5 per cent in 1907. The decrease in the percentage shown for 1907 is probably more apparent than real, since some elements were included in the construction and equipment total for 1907 that were not treated as cost of construction and equipment at the census of 1902. This is explained more fully in the analysis of the balance-sheet accounts in Chapter VII. The question of the relation of capitalization to the value of the property capitalized has many aspects. Some roads have no funded debt, and the capital stock stands for actual cash that has gone into the construction and equipment of the road. In the case of other roads, road construction and equipment are represented as having been paid for by full-paid capital stock and bonds. If every road came within one or the other of the above classes, the par value of the outstanding stock of a given railway company plus the bonded debt at its face value would in fact represent the capital that has gone into the road. But in the case of some companies stock on which only 20, 40, or 50 per cent has been paid in is nevertheless carried on the books at full par value and receives dividends, when any, as if fully paid up. In the case of other companies the bonds have built the road and the stock represents mainly franchise value, etc. In still other cases bonds and preferred stock represent capital actually invested in the business, while common stock stands for franchise value, and, in general, a real or assumed surplus earning capacity. These three sorts of cases are fairly typical; variations from type are numerous and complicated.

Taking the street and electric railway industry as a whole, it is impossible to differentiate that part of the capitalization which represents actual invested capital that has gone into construction, equipment, and operation, either past or present, from that which represents franchise values, earning power, or stock bonus. All that can safely be said in general of the aggregate capitalization is that the term "capitalization" represents an amount on which "the public" is asked to assume that the business will pay, either at once or in the future, a return in the shape of dividends or interest.

Capitalization of holding companies.—The capitalization thus far considered does not represent the whole of the financial structure maintained by the street and electric railways of the United States. In addition to the companies for which statistics have been presented, there are a large number of purely holding organizations, including both incorporated companies and unincorporated associations, organized to control the financial policies and management of operating and lessor companies. These companies have capital stock or participating shares and funded securities based upon the securities of the operating companies controlled by them.

While some of the financing or holding companies have control of the operation of the properties in which they are interested, this control is usually exercised in an advisory capacity and does not take the form of actual, direct supervision of the details incident to the running of the system. These companies may be divided into two classes:

(a) Incorporated companies duly organized as holding corporations. These companies often have funded debt in the form of collateral trust bonds secured by the stocks and bonds and other indebtedness of the controlled companies.

(b) Voluntary associations, managed by a board of trustees and having participating shares, generally both preferred and common, which are handled on the stock exchange on the same basis as the stock of incorporated companies. These shares in some cases have no stated par value, but in case of liquidation the preferred shares are generally to be rated at \$100.

The voluntary holding associations are at present, so far as known, confined to Massachusetts. The state law is a barrier to the direct capitalization of the franchise value or earning power of a road, but there is apparently no provision against the substitution of participating shares of a nonincorporated holding organization for the stock of the incorporated companies.

In both cases the securities of the holding organization are substituted, so far as the general public is concerned, for the securities of the underlying companies to the extent that the securities of the latter are owned by the holding organization. Moreover, in the case of both classes of holding companies, the operating companies remain as distinct corporations, each with its own officers and board of directors, but their earnings go to the treasury of the holding company.

Another phase of railway operation is represented by organizations which act merely as managers and do not own the roads or the stock of the operating companies. Companies that have transferred, in whole or in part, the operation of their properties to organizations of this character, preserve in every respect their complete independence and are affiliated only through the common management.

Reports were secured for 70 financing or holding companies whose investments were chiefly in stocks and bonds of electric railways and electric light and power companies. The par value of their outstanding capitalization amounted to \$954,695,373. In many cases, however, the investments of these companies extend to public utility corporations and other industries not of an electrical character, only minor investments being in the stocks and bonds of electrical corporations.

The following tabular statement shows the capitalization of holding companies in 1907:

Capital stock, funded debt, dividends, and interest of holding companies: 1907.

Number of companies.....	70
Capital stock:	
Authorized, par value.....	\$780,021,374
Common.....	540,968,954
Preferred.....	239,052,424
Outstanding, par value.....	683,391,154
Common.....	484,241,086
Preferred.....	179,120,072
Dividends, amount.....	11,334,657
On common.....	8,187,399
On preferred.....	5,166,268
Funded debt:	
Authorized, amount.....	495,149,076
Outstanding, amount.....	291,334,215
Interest.....	11,016,034
Total capitalization outstanding.....	954,695,373

In considering these statistics it should be remembered that in many instances the capitalization is based on other properties as well as those represented by the railway plant, line, and equipment, and also that on the other hand the statistics may not represent all companies of this class, since it is more difficult to secure reliable information concerning holding and financing companies than concerning operating companies.

In so far as the par value of the securities of the holding companies is in excess of the par value of the securities of the companies which are controlled by the holding companies, this plan of centralization results in an increase of the amount of securities put on the market. Thus the difference between the par value of the securities outstanding of the holding companies and the par value of the securities of companies owned by them should give the net increase in the amount of securities available for investment. But in order to ascertain the amount of this increase exactly, the reports of these organizations should give the stock and bonds owned by them at their par value, whereas in some cases it would appear that such companies carry them in their accounts at cost or book value. Hence only approximate conclusions can be drawn from the statistics as to the extent to which the capitalization of the holding companies represents a net increase. Again, it was not possible for the census to obtain complete or exact balance-sheet statements in the case of all of the holding companies reporting, and it was necessary to supplement the data reported by those given in trade journals, etc.; but so far as could be

ascertained the assets of the 70 holding companies were approximately as follows:

Total assets.....	\$1,048,407,343
Stocks and bonds of other electric railways and light plants.....	783,858,954
Treasury stocks and bonds.....	10,000,000
Other permanent investments.....	183,183,377
All other assets.....	90,764,812

If the amounts reported under the head of treasury securities and other permanent investments outside of the electrical industries (\$193,783,577) are deducted from the par value of the outstanding securities of the holding companies, a total of \$760,911,796 results as the capitalization of the holding companies chargeable to their electric railway and light interests; but the securities of companies operating electrical properties which were held by the holding companies were carried in the balance sheet at \$763,858,954. It is evident, therefore, either that the capitalization of the holding companies, so far as it relates to the electric properties owned and controlled by them, shows a fairly close correspondence to the par value of the securities of the companies owned by the holding companies, or else that the figures do not reveal the true relation between the capitalization of the holding and subsidiary companies. The close apparent agreement between the value of electrical securities held by the holding companies and their outstanding capitalization chargeable to electrical industries, if real, may be explained on the ground that a chief purpose of many holding companies is not to increase the capitalization of the controlled companies, but to enable the men in the holding company to obtain or retain control of large concerns with relatively small capital.

The income of the holding companies comes in the main from dividends and interest on the securities of the controlled companies, which they receive and distribute as dividends and interest on their own securities. Often these returns represent a much lower rate of dividend or interest to investors of the holding company than that which was declared on the original securities; for example, an operating company may pay a dividend of \$12,000 (6 per cent on \$200,000) which is redistributed as a 4 per cent dividend on the capitalization of the holding company—the par value of whose securities is 50 per cent greater than the par value of the securities of the operating company. Hence the holding companies constitute, in some cases, a channel for the distribution of the earnings among a greater volume of securities at a lower rate of return.

A comparison of the dividends on holding-company stock with the total par value of such stock outstanding is misleading, since not all stock pays dividends. The following statement avoids this difficulty by analyzing the securities of holding companies with respect to dividends and interest for the year 1907:

Analysis of dividends and interest of holding companies: 1907.

Common stock:			
Number of companies reporting.....	68		
Number of companies declaring dividends.....	16		
Amount on which dividends were declared.....	\$159,982,450		
Amount of dividends.....	\$9,187,399		
Average rate of dividends on dividend-paying common stock, per cent.....	3.94		
Preferred stock:			
Number of companies reporting.....	38		
Number of companies declaring dividends.....	25		
Amount on which dividends were declared.....	\$128,746,531		
Amount of dividends.....	\$5,166,268		
Average rate of dividends on dividend-paying preferred stock, per cent.....	4.01		
Funded debt:			
Number of companies reporting.....	42		
Amount outstanding.....	\$280,465,390		
Amount of interest.....	\$11,610,034		
Average rate of interest, per cent.....	4.14		

¹ Exclusive of funded debt to the amount of \$10,898,820 for 5 companies which failed to report interest.

The average rates of dividends and interest are considerably lower for holding companies than for operating and lessor railway companies—the latter showing rates of 5.58 per cent for common stock, 4.59 per cent for preferred stock, and 4.42 per cent for bonds, as compared with rates of 3.94, 4.01, and 4.14 per cent, respectively, for the holding companies.

Charter companies.—Besides the operating, lessor, and holding companies for which statistics are presented in this report, there is another class of companies in close alliance with the street and electric railway interests of the country. These companies—known as “charter companies”—are formed to obtain rights of way or franchises, especially in the larger cities. Though a considerable number of such companies reported at the census of 1907, no statistics are presented for them, for the reason that they have only, as a rule, a nominal capitalization, and so far as the Census Office could ascertain, they have made no use of their franchises or rights of way.

Analysis of dividends and interest.—The extent to which the street railways of the country afford a return on capital invested in them is a matter of great interest, not only to those intimately connected with the industry but to the public generally. Of the 1,230 operating and lessor companies reporting capitalization at the present census, 1,016 made some return on their capital stock or funded indebtedness, or both, during the year 1907. These companies had an outstanding capitalization of \$3,555,721,268, or 94.2 per cent of the total for the 1,230 companies, and paid dividends and interest amounting to \$125,954,062, an average rate of 3.54 per cent on the whole of their outstanding capitalization. The extent to which individual companies declared or paid dividends during the census year, together with the rates of interest on bonds for each company, is shown in Table 183.

When the totals for all companies are considered, it is necessary, in order to arrive at trustworthy results, to separate the dividend and interest paying companies and securities from those for which no dividends or interest were reported.

TABLE 75.—*Analysis of dividends and interest of operating and lessor companies combined: 1907 and 1902.*

	1907	1902	Per cent of increase.
Operating and lessor companies combined:			
Number of companies.....	1,230	1,980	25.5
Common stock:			
Number of companies reporting.....	1,227	974	26.0
Number of companies declaring dividends.....	321	258	24.4
Amount outstanding, par value.....	\$1,776,920,076	\$1,187,642,781	49.6
Amount on which dividends were declared.....	\$805,210,000	\$580,326,121	43.7
Per cent dividend-paying stock forms of all common stock.....	45.3	47.9	
Amount of dividends.....	\$44,960,790	\$28,737,887	56.5
Average rate of dividends on all common stock, per cent.....	2.53	2.40	
Average rate of dividends on dividend-paying common stock, per cent.....	5.58	5.13	
Preferred stock:			
Number of companies reporting.....	204	85	140.0
Number of companies declaring dividends.....	97	40	142.5
Amount outstanding, par value.....	\$320,798,790	\$127,930,179	150.8
Amount on which dividends were declared.....	\$207,718,830	\$83,808,055	147.7
Per cent dividend-paying stock forms of all preferred stock.....	64.8	67.7	
Amount of dividends.....	\$9,624,478	\$4,301,284	121.4
Average rate of dividends on all preferred stock, per cent.....	2.97	3.47	
Average rate of dividends on dividend-paying preferred stock per cent.....	4.59	5.13	
Funded debt:			
Number of companies reporting.....	902	781	27.0
Amount outstanding.....	\$1,677,063,240	\$992,709,139	68.9
Amount of interest.....	\$71,408,788	\$43,578,991	64.0
Average rate of interest, per cent.....	4.42	4.47	

¹ Exclusive of 6 companies which failed to report capitalization, interest, and dividends.

² Exclusive of 7 companies which failed to report capitalization. There were 30 companies in all which failed to furnish information concerning interest and dividends; these companies had \$18,967,745 common stock, \$4,000,000 preferred stock, and \$17,325,000 funded debt outstanding.

³ There were 50 companies in 1907 with \$80,034,000 funded debt outstanding which failed to report interest. The funded debt of these companies has been excluded in arriving at this average.

It will be noted that the average dividend rate on preferred stock for 1907—4.59 per cent—was less than the average rate shown for 1902 and also less than the average rate for common stock in both 1907 and 1902. The relatively high average rate of return on common stock was due largely to the fact that a number of lessor companies which had only common stock received a rental that represented a very high rate of dividends on the par value of their own securities.

Of the 1,230 companies reporting capitalization in 1907 there were only 3 that did not report common stock; of these, 1 was municipally owned, 1 was a moribund company that reported only bonds, and 1 reported only preferred stock and bonds. Technically there can be no preferred stock except in connection with common stock, but for census purposes the stock of the latter company was allowed to stand.

The proportion of common stock paying a dividend in 1907 was slightly less than in 1902, but the rate of dividend on such stock increased from 5.13 per cent in 1902 to 5.58 per cent in 1907. By reference to Tables 79 and 80 it will be seen that in 1907 a large proportion of the companies declared dividends of from 6 to 8 per cent on the common stock—104 of the 321 dividend-paying companies falling in this group—and also that 76 of the 97 companies paying dividends on pre-

ferred stock paid dividends of from 5 to 7 per cent. In preparing the tables referred to, companies with more than one rate of dividend were classified according to the average rate of dividend paid.

Dividends declared by operating companies which are controlled by holding companies, through the ownership of the entire issue of their stock, are generally paid to the holding companies. In some cases, however, the net income of the operating company is carried directly to the credit of the holding company, which is entitled, as the holder of the entire capital stock, to all the surplus earnings from which dividends can be paid. This practice, which reduces the dividend showing for the operating companies, has been noted in Table 183 whenever it was reported.

As already noted the amount shown as interest on funded debt does not represent the total interest charge for the year on the total par value of the outstanding debt. It is a common practice among street railways to charge all or a part of the interest to the plant account while construction is going on, so that it does not appear in the income account from which the census figures of interest on funded debt are taken. Again there were companies that did not report any interest charge for 1907. The fixed charge of interest on bonds should be computed on all outstanding funded debt, except possibly for companies in bankruptcy, but in many cases conditions existed which operated to prevent the showing of any interest charge in the statistics. At the present census there were 50 companies with funded debt outstanding that did not show any interest charge in the income account. Of these, 8 charged the entire amount to construction account; 5 defaulted on their interest; 9 had deposited bonds as collateral; 13 had the payment of interest waived by special agreement; 4 were in the hands of receivers. The remaining 11 gave various reasons or no reason at all for omission of interest. The funded obligations of these 50 companies have been excluded in arriving at the average interest rate of 4.42 per cent shown in the table to be compared with the average rate of 4.47 per cent shown at the census of 1902. The statistics as a whole are not conclusive as to whether there was an actual reduction in the average rate of interest reported at the present census as compared with that of 1902. Conditions are brought out more clearly by Table 76, which classifies the companies for 1907 and 1902 according to the rates of interest on their bonds and indicates a general movement toward cheaper rates.

In all cases where companies have several bond issues bearing different rates of interest, they were classified in the table according to the average rate paid on the whole debt.

The balance-sheet statements of the several companies reveal items of \$25,317,196 in 1907 and \$14,497,670 in 1902 for interest due and accrued; but it is impossible to determine whether or to what

extent these figures represent defaulted interest, or merely annual or quarterly accruals, and interest for which the coupons had not yet been presented.

TABLE 76.—Operating and lessor companies reporting funded debt, grouped by rate of interest: 1907 and 1902.

RATE GROUP.	COMPANIES REPORTING FUNDED DEBT.			
	Number.		Per cent of total.	
	1907	1902	1907	1902
Companies reporting funded debt.....	992	781	100.0	100.0
Number of companies paying interest at the rate of—				
3 per cent but less than 4.....	7	3	0.7	0.4
4 per cent but less than 5.....	124	81	12.5	10.4
5 per cent but less than 6.....	716	582	72.2	68.1
6 per cent but less than 7.....	117	137	11.8	17.5
7 per cent but less than 8.....	2	4	0.2	0.5
8 per cent and over.....	1		0.1	
Number of companies for which rate was not reported.....	25	24	2.5	3.1

Tables 77 to 81, inclusive, separate the combined capitalization of operating and lessor companies, as reported at the census of 1907, into two classes—that on which dividends or interest were paid and that on which no dividends or interest were paid. The tables relating to common stock exclusively and preferred stock exclusively, further group the dividend-paying companies according to the rates of dividends declared.

TABLE 77.—Capitalization—Amount, dividends, and interest for operating and lessor companies paying either dividends on stock or interest on funded debt, and amount for companies not paying either dividends or interest: 1907.

	Companies reporting capitalization.	Companies paying either dividends on stock or interest on funded debt.	Companies not paying either dividends on stock or interest on funded debt.
Number of companies.....	1,230	1,016	214
Aggregate capitalization:			
Amount authorized, par value.....	\$4,830,775,173	\$4,480,408,529	\$150,266,644
Amount outstanding, par value.....	\$3,774,772,000	\$3,555,721,268	\$219,050,732
Amount of dividends and interest.....	\$125,954,062	\$125,954,062	
Average rate of dividends and interest, per cent.....	3.34	3.54	

The total dividend and interest payments represent an average rate of 3.34 per cent on the total outstanding capitalization of all companies. But some companies paid neither interest nor dividends. If the capitalization of these companies, 5.8 per cent of the total, be excluded from the calculation, the average rate rises to 3.54 per cent. In other words, if the companies paying either interest or dividends had had only one form of security in their actual capitalization, they would have paid an average of 3.54 per cent on that single security.

As the total capitalization of the 1,016 companies reporting dividends or interest includes large amounts of stock on which no dividends were paid, the total dividends and total interest should be severally con-

sidered in connection with the stock and bonds, respectively, on which they were paid. Some companies having both common and preferred stock paid dividends on one class of stock but none on the other. It is, however, of interest to know the total capital stock of all companies which paid dividends on either common or preferred stock during the census year, and statistics in reference to this point are given in Table 78.

The par value of the outstanding shares of the 381 companies paying dividends represented 58.4 per cent of the total for the 1,228 companies that reported capital stock, and the amount of dividends paid, \$54,485,274, was equal to an average rate of 4.45 per cent on the outstanding stock.

TABLE 78.—Capital stock—Amount and dividends for operating and lessor companies paying dividends either on common or preferred stock, and amount for companies not paying dividends: 1907.

	Companies reporting capital stock.	Companies paying dividends either on common or preferred stock.	Companies not paying dividends either on common or preferred stock.
Number of companies.....	1,228	381	847
Capital stock:			
Amount authorized, par value.....	\$2,508,054,336	\$1,305,061,770	\$1,142,992,566
Amount outstanding, par value..	\$2,097,708,856	\$1,224,337,490	\$873,371,376
Amount of dividends..	\$54,485,274	\$54,485,274	
Average rate of dividends, per cent.....	2.60	4.45	

¹ Exclusive of 2 companies which did not report capital stock.

TABLE 79.—COMMON STOCK—AMOUNT AND DIVIDENDS FOR OPERATING AND LESSOR COMPANIES PAYING DIVIDENDS, GROUPED BY RATE OF DIVIDENDS, AND AMOUNT FOR COMPANIES NOT PAYING DIVIDENDS: 1907.

RATE GROUP.	COMMON STOCK, PAR VALUE.						
	Number of companies.	Authorized.		Outstanding.		Dividends.	
		Amount	Per cent of total.	Amount	Per cent of total.	Amount.	Average rate per cent.
Companies reporting common stock.....	1,227	\$2,098,885,736	100.0	\$1,776,920,075	100.0	\$44,960,796	2.53
Companies paying dividends on common stock.....	321	\$804,676,670	43.1	\$805,210,600	45.3	\$44,960,796	5.58
Less than 1 per cent.....	2	7,500,000	0.4	7,500,000	0.4	38,300	0.51
1 per cent but less than 2.....	17	61,317,200	2.9	50,953,900	3.4	635,217	1.4
2 per cent but less than 3.....	29	65,708,120	3.2	62,566,262	3.5	1,303,514	2.08
3 per cent but less than 4.....	18	62,376,500	3.0	62,026,000	3.5	1,977,304	3.19
4 per cent but less than 5.....	20	110,842,100	5.3	104,206,038	5.9	4,241,354	4.07
5 per cent but less than 6.....	50	102,087,800	4.9	94,722,100	5.3	4,724,102	5.0
6 per cent but less than 7.....	81	212,919,500	10.1	148,427,750	8.4	9,052,636	6.10
7 per cent but less than 8.....	23	140,104,050	6.7	137,791,950	7.8	9,563,756	7.0
8 per cent but less than 9.....	19	48,420,100	2.3	37,668,200	2.1	2,081,622	5.6
9 per cent but less than 10.....	6	42,280,000	2.0	41,440,400	2.3	3,682,136	8.2
10 per cent and over.....	47	48,361,200	2.3	48,888,000	2.9	6,700,395	13.83
Companies not paying dividends on common stock.....	906	1,194,309,066	56.9	971,709,476	54.7		

¹ Exclusive of 3 companies which did not report common stock.

The presentation given in Table 78 does not show the true rate of dividends on stock. The true rate on common stock is indicated to some extent by the statistics in Table 79, which is confined to this class of stock.

Of the 1,227 companies that reported common stock, 321 paid dividends amounting to \$44,960,796 on common stock, the par value of which was \$805,210,600; the average rate was thus 5.58 per cent. The outstanding common stock of these 321 dividend-paying companies comprised 45.3 per cent of the total for the 1,227 companies reporting common stock. Some companies did not pay dividends on the entire amount of common stock outstanding, and it was impossible in all cases to determine exactly the amount of stock of a company which should be credited as paying dividends, but after making proper allowance as far as possible for the condition referred to, it

appears that the average rate of dividend was nearer 5.69 per cent than the 5.58 per cent shown in the table.

Of the 321 companies, 176 reported the payment of dividends of 6 per cent or more. The par value of the outstanding common stock of these companies, \$414,236,300, formed 51.4 per cent of the total common stock on which dividends were paid, and the average rate for the issue was 7.73 per cent. The 145 companies that paid dividends of less than 6 per cent reported \$390,974,300 as the par value of their outstanding common stock, and on that amount the average rate of dividend was 3.30 per cent.

As has been noted before, the dividend rates on the common stock are decidedly higher than the rates on preferred stock, for which statistics are presented in Table 80.

TABLE 80.—PREFERRED STOCK—AMOUNT AND DIVIDENDS FOR OPERATING AND LESSOR COMPANIES PAYING DIVIDENDS, GROUPED BY RATE OF DIVIDENDS, AND AMOUNT FOR COMPANIES NOT PAYING DIVIDENDS: 1907.

RATE GROUP.	Number of companies.	PREFERRED STOCK, PAR VALUE.						
		Authorized.		Outstanding.		Dividends.		
		Amount.	Per cent of total.	Amount.	Per cent of total.	Amount.	Per cent of total.	Average rate per cent.
Companies reporting preferred stock.....	204	\$409,168,600	100.0	\$330,788,780	100.0	\$9,524,478	100.0	2.97
Companies paying dividends on preferred stock.....	97	235,120,100	57.5	207,718,830	64.8	9,524,478	100.0	4.59
1 per cent but less than 2.....	3	13,700,000	3.3	9,300,000	2.9	102,000	1.1	1.11
2 per cent but less than 3.....	1	9,000,000	2.2	8,707,900	2.7	195,928	2.1	2.25
3 per cent but less than 4.....	5	23,292,900	5.7	23,292,900	7.3	759,113	8.0	3.26
4 per cent but less than 5.....	5	9,050,000	2.2	9,050,000	2.8	362,000	3.8	4.00
5 per cent but less than 6.....	40	116,143,300	28.1	101,761,900	31.7	4,285,327	48.2	4.52
6 per cent but less than 7.....	26	53,283,900	13.0	44,231,130	13.8	2,560,377	27.2	5.86
7 per cent but less than 8.....	4	3,700,000	0.9	3,700,000	1.2	255,353	2.7	6.90
8 per cent but less than 9.....	1	6,400,000	1.6	6,400,000	2.0	512,000	5.4	8.00
9 per cent but less than 10.....								
10 per cent and over.....	2	1,550,000	0.4	1,375,000	0.4	132,400	1.6	11.08
Companies not paying dividends on preferred stock.....	107	174,048,500	42.5	113,069,950	35.2			

Only 97 of the 204 companies having preferred stock paid dividends in 1907, but the par value of the outstanding preferred stock of these companies formed 64.8 per cent of all preferred stock reported. As in the case of common stock, some preferred stock paid no dividends even when other preference shares issued by the same company received dividends. A deduction of such stock from the outstanding issues of the 97 companies, so far as this may be done, results in changing the average rate of dividends from the 4.59 per cent shown in the table to 4.84 per cent.

The following table shows the number of companies reporting funded debt at the census of 1907, the amount of debt, both authorized and outstanding, and the amount of interest paid. It also distinguishes between the companies that did and did not pay interest.

TABLE 81.—Funded debt—Amount and interest for operating and lessor companies paying interest, and amount for companies not paying interest: 1907.

	Companies reporting funded debt.	Companies paying interest.	Companies not paying interest.
Number of companies.....	1 992	924	1 68
Amount of funded debt authorized.....	\$2,322,720,837	\$2,211,345,746	\$111,375,091
Amount of funded debt outstanding.....	\$1,677,003,240	\$1,617,029,174	\$60,034,066
Amount of interest.....	\$71,468,784	\$71,468,784	
Average rate of interest, per cent..	4.26	4.42	

¹ Includes 18 companies having authorized funded debt but none outstanding.

² Includes authorized funded debt to the amount of \$27,865,000 for which there was none outstanding.

Net capitalization.—To ascertain the net capitalization representative of the street and electric railway industry, cognizance must be taken of the stocks and bonds of other street and electric railway companies, treasury stocks and bonds, and nonrailway investments returned by the reporting companies.

It frequently happens that one railway company owns securities of another railway company, in some cases all of the stock or enough to give control. Such

cases necessarily occasion a duplication in the capitalization reported to the extent that the securities of one company are owned by the other. Hence, in ascertaining the net capitalization chargeable against railway trackage and equipment, the total amount of the stocks and bonds of street and electric railway companies that are owned by other street and electric railway companies should be deducted from the total outstanding capitalization. In computing the net capitalization the *par value* of these intercompany holdings should be deducted, but as such securities are often carried and reported at their cost or book value, the par value was not ascertainable.

Furthermore, it is a common practice to use treasury bonds as collateral security for floating indebtedness. Such bonds are securities of the company which have been duly authenticated and are in condition for delivery if sold, and are regarded as a part of the outstanding bonded liability of the company. But it will be seen that in such cases the inclusion of such treasury bonds of the company in the bonded indebtedness results in a duplication, since the amount of the loan is represented in the funded debt by the hypothecated bonds and in the floating debt by "loans or notes payable." To the extent that such treasury bonds are in use as collateral for floating indebtedness, dollar for dollar, they represent a simple duplication, but when, as is frequently the case, the par value of the hypothecated bonds exceeds the proceeds of the loan, the duplication is proportionately aggravated. Further, some companies carry a part of their stocks and bonds in the treasury as current assets. These stocks and bonds are regarded as issued and outstanding, and form a "bookkeeping" liability. They are in condition for negotiation and delivery without any further action or authority on the part of the directors. Hence stocks and bonds of a company held in its own treasury or hypothecated are to be deducted from the gross capitalization in ascertaining the net capitalization.

The problem is further complicated by the fact that many companies possess interests in nonrailway enterprises in the form of investments for the production of current for light and power, the manufacture of gas and ice, the operations of ferries, real estate operations, etc.¹ The gross capitalization in such cases covers all departments of the company's operations, with the nonrailway investments and net income therefrom carried as separate items in the balance sheet and income accounts. Hence the investments in nonrailway enterprises should also be deducted from the gross capitalization to ascertain the net amount chargeable to railway operations.

Some uncertainty surrounds the amount shown in the balance-sheet statement as "other permanent investments," since a division of the property assets between railway and nonrailway interests was not carried in the ledger accounts of many companies. In these cases a segregation based upon estimate was obtained. Again, such investments, when carried, may have been assigned too high a valuation, and their deduction would make the net capitalization too low. And yet, all things considered, the deduction of investments in the securities of other railway companies and in nonrailway property from the total capitalization to ascertain the net capitalization chargeable to the railway industry gives the nearest approximation to the truth.

The investment in lighting plants when reported in combination with railway operations was treated as part of the cost of construction and equipment of the railway and the gross expense and income carried in the income account.² Whenever the nonrailway interests are considerable, or the company operates an electric-light plant, the fact is noted in Table 183.

The total amount invested in securities and in nonrailway properties reported in 1907 amounted to \$374,664,197, equivalent to 9.9 per cent of the total capitalization, as compared with \$152,513,997, or 6.6 per cent of the total capitalization in 1902. When these amounts are deducted from the total capital stock and funded debt, totals are obtained of \$3,400,107,899 for 1907 and \$2,155,768,102 for 1902, which amounts should be considered as the net capitalization chargeable against the trackage and equipment of street and electric railways, with the exception that some investments in electric-light plants are included. These are the amounts upon which the statistics as to the net capitalization per mile of track for all companies have been based.

¹ As a rule, the total capitalization of a company engaged in more than one industry is included in the census statistics, but there were a few cases when the railway interests were small compared to the total business of the company where the capitalization was apportioned between the several departments and only the part assignable to the electrical industries reported. These cases are noted in Table 183. For list of industries operated in connection with electric railways, see p. 117.

² See p. 116.

Capitalization per mile of track.—The gross capitalization per mile of track is arrived at by dividing the capitalization—that is, the total outstanding capital stock and funded debt—by the total miles of trackage for which corresponding data regarding capitalization were reported. The net capitalization per mile of track is found by dividing the net outstanding capitalization (as described in the foregoing section) by the track mileage for which capitalization was reported.

Table 183 shows the capitalization per mile of track reported for each company, together with state and United States totals, for 1907. In order not to disclose any part of the financial data of individual companies, the capital invested in securities and nonrailway property has not been deducted in making the calculation by companies, and the figures show, therefore, the total or gross capitalization, the net capitalization being shown only in the totals for states and other groups.

The gross capitalization per mile of track for all companies increased from \$103,099 in 1902 to \$111,569 in 1907, and the net capitalization from \$96,287 to \$100,495. A mile of track is taken as the unit of measure rather than a mile of line, as it is a unit which results in the most comparable statistics. In some cases roads are double tracked, the outgoing and incoming tracks being on the same street, while in other cases the outgoing and incoming tracks are on different streets, and though the amount of trackage may be the same in each case, roads in the latter class will have twice the length of line of roads belonging to the former class.

The net capitalization per mile of track may have considerable statistical value when the companies are taken in the aggregate or in groups, but the gross capitalization shown for individual companies has but little significance. In some cases the capitalization covers investments in lighting plants and other properties, while in others it does not. Again, the capitalization in many cases includes franchise values and earning capacity; in some cases it represents only cost of the construction and equipment of railway property; while in some cases, on the contrary, surplus earnings have gone into betterments and additions until the actual invested capital exceeds the capitalization.

In some instances the capitalization has been changed during the census interval, so that the relation of capitalization to trackage at the present census is not properly comparable with that at the preceding census. For example, one electric road at the census of 1902 reported a capitalization of less than \$2,500 per mile of track, the surplus earnings over and above moderate dividends having gone into its construction account. During the census interval the capital stock was increased so as to cover the accumulation of former invested capital and to capitalize the franchise

value or earning power without any material change in plant investment or in the physical characteristics of the property, so that now the capitalization per mile of track is over \$60,000 and approximates the average capitalization for the majority of the companies of the same size.

Attention should again be called to the fact that in some cases a large amount of capital in excess of the current liability requirements is represented by floating debt in the form of promissory notes. This occurs more particularly in Massachusetts and is probably due to the operation of the state law regulating the capitalization of railway companies. A considerable amount of the capital thus secured is for purposes of construction and equipment and should therefore properly be included along with funded debt in the capitalization in order to give the total capitalization per mile of track. Though the amount of floating debt of this character which should be classed as capitalization is small compared with the funded debt for the country at large, yet it is a considerable factor in the case of Massachusetts and results in a lower capitalization per mile of track for that state than is actually the case. As has already been pointed out, however, it is impossible to segregate the floating debt that represents money borrowed for purposes of construction or equipment, and therefore this form of capitalization has been excluded from the calculations, although where the amount of floating debt was large this fact is noted for each company in Table 183.

Again, in cases where money employed for purposes of construction or equipment or for investment in the securities of other railway companies or nonrailway enterprises was obtained from proceeds of debt carried in the form of "floating debt," the deduction of such investments from the capitalization gives misleading results and a net capitalization per mile of track below the true figure. Manifestly in such cases all securities representative of money invested, whether in the form of capital stock, funded debt, or floating debt, should be included, if it be possible, to determine the capitalization per mile of track.

Another phase of the problem is illustrated by an operating company affiliated with another operating company, the former carrying a floating debt to the amount of several millions, a minor portion of which is represented by permanent investments in nonrailway properties, while the greater part has been loaned to the affiliated corporation. This latter corporation has employed the several millions of money loaned to it for construction and equipment, and its own capitalization falls short of representing the true capitalization per mile of track unless it includes the large amount carried as floating debt. Hence a proper presentation of the capitalization chargeable to trackage requires the exclusion of the floating debt in the case of the former company and the inclusion of it in the case of the latter company. The conditions vary so greatly that no one

plan of presentation of the capitalization per mile of track will fit all cases.

In the case of a company operating leased trackage there are often heavy investments in betterments and additions to the leased property, which investments are covered by the capitalization of the lessee company, with the result that this company shows an excessive capitalization per mile of trackage owned, and the company owning the leased road shows a capitalization per mile of owned track which is too low, as it does not embrace the betterments and additions made by the lessee and operating company. When the statistics of capitalization and of owned trackage of the lessee and lessor roads are considered in connection with each other, however, the disjointed factors are brought together and figures are obtained showing the total capitalization chargeable to the aggregate of the owned trackage reported for both companies. In all cases the capitalization shown for operating and lessor companies in Table 183 has been figured on the combined totals for such companies.

A comparison of the capitalization per mile of track for individual companies in the two census years 1907 and 1902 is misleading unless all the conditions affecting the calculations are known. Likewise, the average capitalization reported both for individual companies and for separate states at the present census must be considered with due allowance for all the elements affecting the comparability of the statistics. The range of the average is nevertheless interesting. The highest capitalization per mile of track in 1907 (\$1,833,333) was reported by the General Electric Railway Company, of Illinois, and the lowest (\$1,725) by the Fryeburg Horse Railroad Company, of Maine. In 1902 the two extremes were represented by the Union Consolidated Elevated Railway Company (lessor), of Illinois (\$3,702,632), and the Red Lion and Windsor Street Railway Company, of Pennsylvania (\$400). Among the different states, exclusive of the District of Columbia, Louisiana had the highest capitalization per mile of track in 1907, \$198,631, and South Dakota the smallest, \$17,000, compared with averages in 1902 of \$177,532 for New York and \$11,050 for Arizona.

While the range in the averages for individual companies and states is very great, the average for the different geographic divisions conforms more closely to that for the United States.

Net capitalization per mile of track, by geographic divisions: 1907 and 1902.

DIVISION.	1907	1902	Per cent of increase.
United States.....	\$100,405	\$96,287	4.4
North Atlantic.....	109,578	105,060	4.3
South Atlantic.....	112,013	114,280	12.0
North Central.....	90,292	86,808	3.5
South Central.....	96,640	66,343	39.4
Western.....	97,975	76,612	27.9

¹ Decrease.

It will be noted that the increases, 1902 to 1907, have tended toward uniformity in the averages. Also that the decrease in the average for the South Atlantic division has brought it more in harmony with the averages for the other divisions in 1907. The decrease in the average for the South Atlantic states was probably due largely to a more careful segregation of railway and nonrailway property in the balance sheets of several large companies for 1907 than 1902.

Capitalization per mile of track of street and electric railways and steam railroads.—Comparisons between the capitalization per mile of track for street and electric railways and for steam roads can be made only with considerable reservation. In order to make such comparisons it is necessary to reduce the figures to a common basis. The Interstate Commerce Commission

computes the relation of capitalization to trackage on a basis of line mileage, that is, the length of the road, while the statistics for street and electric railways are based on the total track mileage, including double tracks and sidings. In preparing the comparative figures for the two industries shown in the following table it was not possible to exclude all the duplication due to the miles of track operated under trackage rights by steam railroads. Hence the resulting estimates for the capitalization per mile of track for the steam railroads are lower than they would be if the basis was the same as that employed for street and electric railways. With this understanding Table 82 is presented, to show the comparative statistics for street and electric railways and steam railroads in 1907 and 1902.

TABLE 82.—CAPITALIZATION STATISTICS OF STREET AND ELECTRIC RAILWAYS AND STEAM RAILROADS: 1907 AND 1902.

	STREET AND ELECTRIC RAILWAYS.		STEAM RAILROADS.		PER CENT OF INCREASE.	
	1907	1902	1907	1902	Street and electric railways.	Steam railroads.
Miles of track ¹	33,833.54	22,389.04	315,899.96	268,808.23	51.1	17.5
Total capitalization.....	\$3,774,772,096	\$2,308,282,090	\$16,052,146,683	\$12,134,182,964	63.5	32.5
Total capitalization per mile of track.....	111.569	103.099	50.909	45.141	8.2	12.8
Investments in securities and nonrailway property.....	374,661,197	152,513,997	3,525,945,854	2,578,158,683	145.7	36.8
Net capitalization.....	3,400,107,909	2,155,768,102	12,556,200,829	9,556,024,281	57.7	31.4
Net capitalization per mile of track.....	100.495	96.287	39.747	35.560	4.4	11.9

¹ Exclusive of trackage for which no capitalization was reported.

The table shows that though, in general, the relative increase in miles of track and total capitalization has been proportionately greatest for the street and electric railways, the rate of increase in capitalization per mile of track has been greatest for the steam roads.

The investments of street and electric railway companies in the securities of other railway companies and in nonrailway properties were equivalent to 9.9 per cent of the total capitalization in 1907 as compared with 6.6 per cent in 1902, a relatively large increase, while in the case of the steam railroads the corresponding percentage has remained approximately constant, such investments being equivalent to 21.9 per cent of the total capitalization in 1907 compared with 21.2 per cent in 1902.

The ratio between the capitalization per mile of track of steam railroads on the one hand, and of street and electric railways on the other, was very nearly the same for the two census years—being 1 to 2.19 in 1907 compared with 1 to 2.28 in 1902; while the corresponding ratio for net capitalization per mile of track was 1 to 2.53 for 1907 compared with 1 to 2.71 in 1902.

Capitalization statistics of companies, classified according to income from railway operations.—The conditions determining the relative amount of capitalization per mile of track, and its character in the case of large

companies, differ in many important respects from those affecting the capitalization of smaller systems. This is shown in a measure by the statistics contained in Table 83, which presents statistics in reference to the capitalization of companies, classified according to income from railway operations.

In considering the capitalization of street and electric railway companies when classified according to the magnitude of their operations, the chief interest centers about the relation between capitalization and physical equipment, so far as the latter can be measured or gauged on the basis of miles of track owned. If the conditions under which large and small companies operate were substantially the same, then the relation of capitalization to trackage would be practically the same for all classes. A study of the statistics shows that along with the increase in magnitude of operations there is, in general, an increase in the amount of capitalization, whether in the form of stock or bonds, in proportion to the trackage. The amount of both stock and bonds outstanding per mile of track reported for companies in Class A is above the average shown for the United States at both censuses, while the corresponding amounts shown for all of the other groups are below the United States averages.

TABLE 83.—CAPITALIZATION STATISTICS OF OPERATING AND LESSOR COMPANIES COMBINED, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of operating and lessor companies.....	1907	11,230	240	99	115	209	507	19.5	8.0	9.3	17.0	46.1
	1902	1080	132	49	84	131	584	13.5	5.0	8.6	13.4	50.6
Per cent of increase.....		25.5	81.8	102.0	26.9	39.5	2.0					
Miles of track ¹	1907	33,833.54	15,346.00	4,302.20	3,954.58	4,774.10	5,376.06	45.4	13.0	11.7	14.1	15.9
	1902	22,399.04	8,386.91	2,127.29	2,749.94	3,421.58	5,703.32	37.5	9.5	12.3	15.3	25.5
Per cent of increase.....		51.1	83.0	106.0	43.8	39.5	5.7					
Capital stock outstanding, par value.....	1907	\$2,097,708,856	\$1,356,564,140	\$212,480,538	\$141,291,744	\$218,256,654	\$169,105,780	64.7	10.1	6.7	10.4	8.1
	1902	\$1,315,573,960	\$872,003,911	\$100,941,796	\$63,679,745	\$121,167,320	\$117,545,651	66.3	7.7	7.9	9.2	8.9
Per cent of increase.....		59.5	55.5	110.5	28.8	80.1	43.0					
Common, par value.....	1907	\$1,776,920,076	\$1,134,409,840	\$175,634,538	\$121,036,544	\$187,116,499	\$158,722,655	63.8	9.9	6.8	10.5	8.9
	1902	\$1,187,642,781	\$780,733,905	\$90,532,641	\$63,679,745	\$109,717,430	\$112,979,070	63.7	7.6	7.9	9.2	9.5
Per cent of increase.....		49.6	45.3	94.0	28.2	70.5	40.5					
Dividends, amount.....	1907	\$44,960,796	\$40,336,194	\$2,080,553	\$1,363,006	\$751,810	\$428,633	89.7	4.6	3.0	1.7	1.0
	1902	\$28,737,887	\$25,335,334	\$1,347,637	\$878,202	\$712,181	\$464,500	88.2	4.7	3.1	2.5	1.6
Per cent of increase.....		56.5	59.2	54.4	55.3	5.6	17.7					
Preferred, par value.....	1907	\$330,788,780	\$222,154,300	\$36,856,000	\$30,255,200	\$31,140,155	\$10,383,125	60.3	11.5	6.3	9.7	3.2
	1902	\$127,930,179	\$91,870,000	\$10,409,155	\$9,634,537	\$11,449,900	\$4,586,581	71.8	8.1	7.5	9.0	3.6
Per cent of increase.....		159.8	141.8	254.1	110.2	172.0	127.4					
Dividends, amount.....	1907	\$9,324,478	\$7,569,325	\$754,440	\$424,524	\$634,840	\$111,349	79.9	7.9	4.5	6.7	1.2
	1902	\$4,301,284	\$3,555,493	\$374,224	\$148,042	\$156,425	\$63,100	82.7	8.8	3.4	3.6	1.5
Per cent of increase.....		121.4	113.7	99.5	186.8	305.8	76.5					
Capital stock per mile of track.....	1907	\$62,001	\$88,305	\$48,480	\$35,729	\$45,717	\$31,455					
	1902	\$58,790	\$104,044	\$47,451	\$37,570	\$35,413	\$30,610					
Per cent of increase.....		5.5	15.0	2.2	4.9	29.1	22.6					
Funded debt outstanding, amount.....	1907	\$1,677,083,240	\$1,087,249,675	\$146,257,100	\$132,042,400	\$167,509,150	\$114,004,915	64.6	11.1	7.9	9.4	6.8
	1902	\$902,709,139	\$620,702,432	\$86,441,850	\$87,358,513	\$100,547,500	\$97,589,044	62.5	8.7	8.8	10.1	9.8
Per cent of increase.....		68.0	75.1	115.5	51.2	56.7	16.8					
Interest on funded debt, amount.....	1907	\$71,468,798	\$46,109,706	\$8,025,692	\$6,148,904	\$6,737,774	\$4,446,712	64.5	11.2	8.6	9.4	6.2
	1902	\$43,678,961	\$28,509,148	\$4,083,454	\$3,608,332	\$3,772,851	\$3,546,152	63.6	9.4	8.2	8.7	8.1
Per cent of increase.....		64.0	61.4	96.5	70.4	78.6	25.4					
Funded debt per mile of track.....	1907	\$49,568	\$70,846	\$42,503	\$33,390	\$32,992	\$21,206					
	1902	\$44,330	\$74,019	\$40,035	\$31,767	\$29,386	\$17,107					
Per cent of increase.....		11.8	4.3	6.6	5.1	12.3	24.0					
Total capitalization, outstanding.....	1907	\$3,774,772,096	\$2,443,813,815	\$398,747,638	\$273,334,144	\$375,765,804	\$283,110,695	64.7	10.6	7.2	10.0	7.5
	1902	\$2,308,282,009	\$1,493,396,343	\$187,383,446	\$190,672,795	\$221,714,820	\$215,114,045	64.7	8.1	8.3	9.6	9.3
Per cent of increase.....		63.5	63.6	112.8	43.4	69.5	31.6					
Total capitalization per mile of track.....	1907	\$111,569	\$159,241	\$90,903	\$69,118	\$78,709	\$32,661					
	1902	\$103,069	\$178,063	\$88,040	\$80,337	\$64,799	\$37,717					
Per cent of increase.....		8.2	10.6	3.3	0.3	21.5	39.6					
Investments in securities and non-railway property, amount.....	1907	\$374,664,197	\$212,385,041	\$57,591,742	\$14,592,648	\$57,263,915	\$32,820,851	56.7	15.4	3.9	15.3	8.8
	1902	\$152,613,997	\$128,387,757	\$7,286,960	\$5,723,972	\$4,406,924	\$6,708,384	84.2	4.8	3.8	2.9	4.4
Per cent of increase.....		145.7	65.4	690.3	154.9	389.3	389.3					
Net capitalization.....	1907	\$3,400,107,899	\$2,231,418,774	\$341,155,896	\$258,741,496	\$318,501,889	\$250,290,844	63.6	10.0	7.6	9.4	7.4
	1902	\$2,155,768,102	\$1,365,008,586	\$180,096,486	\$184,948,823	\$217,307,808	\$208,406,311	63.3	8.4	8.6	10.1	9.7
Per cent of increase.....		57.7	63.5	89.4	39.9	46.0	20.1					
Net capitalization per mile of track.....	1907	\$100,895	\$145,402	\$77,850	\$65,428	\$66,715	\$46,556					
	1902	\$95,287	\$162,755	\$84,660	\$67,356	\$63,511	\$36,541					
Per cent of increase.....		4.4	10.7	8.0	2.7	5.0	27.4					

¹ Exclusive of 6 companies which failed to report capitalization.² Exclusive of 7 companies which failed to report capitalization.³ Decrease.⁴ Exclusive of track for which no capitalization was reported: 1907—570.02 miles (includes 292.95 miles for 6 companies which failed to report capitalization and 277.07 miles leased from steam railroads, bridge companies, etc.); distributed as follows: 217.74 miles in Class A, 4.04 miles in Class B, 55.18 miles in Class C, 205.58 miles in Class D, 87.48 miles in Class E; 1902—187.95 miles (includes 134.98 miles for 7 companies which failed to report capitalization and 52.97 miles leased from steam railroads, bridge companies, etc.); distributed as follows: 27.40 miles in Class A, 32.65 miles in Class C, 57.39 miles in Class D, 70.51 miles in Class E.

It should be remembered that Class A includes the companies operating in urban districts of highest density. The percentage of increase from 1902 to 1907 in capital stock reported by companies in Class A is not so large as the percentage of increase in trackage, nor is the percentage of increase in funded debt equal to that in trackage, though it is greater than the percentage of increase in capital stock. It will be noted, however, that, although both the total and net capitalization per mile of track, as well as the amount of stock and

funded debt, respectively, outstanding per mile, has decreased so far as the companies in Class A are concerned, increases are shown in all these respects for the companies belonging to Classes D and E, while for those belonging to the intermediate Classes B and C, increases are shown in some of the respects indicated and losses in others. The amount of investments in securities of other companies and in nonrailway properties, the increase in which has been particularly heavy for the companies belonging to Classes B and D,

are, however, a disturbing factor, as such investments affect the amount of both stock and funded debt reported, and have no necessary relation to the operated property. For this reason the net capitalization per mile of track is the only proper basis for comparison. There is apparently a tendency toward a relative decrease in the net capitalization per mile of track in the case of the larger companies becoming progressively stronger in proportion to the increase in magnitude of operations. Thus the net capitalization per mile of track of the companies belonging to Class E increased \$10,015, or 27.4 per cent; those belonging to Class D show a lesser amount of increase, viz, \$3,204, or 5 per cent; those in Class C show an actual decrease of \$1,828, or 2.7 per cent; those in Class B a still larger decrease, viz, \$6,810, or 8 per cent; while those in Class A show a decrease of \$17,353, or 10.7 per cent.

All groups show an increase in the amount of dividends paid, both in the aggregate and on common and preferred stock, respectively, except that the companies belonging to Class E show a decrease in the amount of dividends paid on common stock. In a general way, the larger companies show larger amounts proportionally disbursed as dividends than do the smaller companies. Although the capital stock reported for each class includes stock upon which dividends were not paid, yet the average rate of dividends as based upon the total stock outstanding can be taken as showing the general trend. For all companies the sum paid in dividends represented an average rate of 2.60 per cent on the total outstanding stock in 1907 and 2.51 per cent in 1902. While the amount disbursed as dividends in 1907 by the companies belonging to Class A represented an average rate of 3.53 per cent upon the total capital stock outstanding as compared with 3.31 per cent in 1902, the other classes with but one exception, Class C (0.99 in 1902 and 1.27 in 1907), show decreases in the

average rate. The amount paid out in dividends by the companies belonging to Class B represented an average rate of 1.33 per cent on their total capital stock in 1907 as against an average of 1.71 per cent in 1902; Class E, an average rate of 0.32 per cent in 1907 compared with 0.45 per cent in 1902, a decrease in each case; while for Class D the average rate in 1907 was 0.64 per cent compared with 0.72 per cent in 1902, also a proportional decrease.

Capitalization statistics of companies, classified according to kind of system and character of service.—The construction of an elevated or subway system necessarily requires a greater investment per mile than is required for a surface line. There were no companies that operated subway trackage exclusively in 1907 and only 2 companies—in Chicago, Ill.—that operated exclusively over elevated trackage. The Manhattan Railway of New York City is an elevated road exclusively, but is leased to and operated by the same company that operates the subway, and was covered in the census returns by a combined report made for both the elevated and subway. There were in all 15 companies that operated either elevated and subway, elevated and surface, subway and surface, or elevated, subway, and surface trackage; but some of these companies operated only a small portion of elevated or subway and tunnel trackage in connection with their surface trackage. In fact, there were only 6 operating companies, with their 3 lessor companies, which could be considered as mainly elevated and subway systems.¹ These companies make up the group included under the head of "Electric elevated and subway railways" in the following table, which gives statistics as to capitalization for all companies, classified according to the kind of system and character of service.

¹ See also p. 22.

TABLE 84.—CAPITALIZATION STATISTICS OF OPERATING AND LESSOR COMPANIES COMBINED, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected inter-urban lines.	Selected small urban roads.	All other railways.
Number of operating and lessor companies.....	1,230	9	1,221	90	100	1,040
Miles of track.....	433,843.54	416.80	33,416.74	5,453.29	560.69	27,819.56
Capital stock outstanding, par value.....	\$2,097,708,856	\$160,745,500	\$1,036,903,366	\$247,522,080	\$8,631,000	\$1,841,703,086
Common, par value.....	\$1,776,920,076	\$142,037,600	\$1,634,882,476	\$185,223,200	\$8,448,000	\$1,583,218,786
Dividends, amount.....	\$44,560,706	\$7,078,952	\$37,281,844	\$99,720	\$29,653	\$44,031,417
Preferred, par value.....	\$320,788,780	\$18,707,900	\$302,080,880	\$62,698,880	\$185,000	\$258,534,000
Dividends, amount.....	\$9,524,475	\$445,928	\$9,078,546	\$454,638	\$1,750	\$8,568,060
Capital stock per mile of track.....	\$62,001	\$385,099	\$57,964	\$45,353	\$15,397	\$68,204
Funded debt outstanding, amount.....	\$1,077,063,240	\$133,787,000	\$1,543,276,240	\$197,597,000	\$7,008,400	\$1,472,459,840
Interest on funded debt, amount.....	\$71,408,788	\$5,255,452	\$65,213,336	\$8,476,239	\$281,378	\$62,739,171
Funded debt per mile of track.....	\$49,568	\$320,948	\$46,183	\$36,234	\$12,466	\$52,929
Total capitalization outstanding.....	\$3,774,772,095	\$294,532,500	\$3,680,259,506	\$444,919,080	\$15,639,400	\$3,314,213,526
Total capitalization per mile of track.....	\$111,560	\$706,652	\$104,147	\$81,587	\$27,903	\$119,132
Investments in securities and nonrailway property, amount.....	\$374,064,197	\$27,918,732	\$346,745,465	\$41,693,449	\$324,672	\$332,646,079
Net capitalization.....	\$3,400,707,898	\$266,613,768	\$3,133,494,131	\$403,225,631	\$15,314,728	\$2,961,567,447
Net capitalization per mile of track.....	\$100,495	\$639,068	\$95,770	\$73,942	\$27,314	\$107,175

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Exclusive of 6 companies which failed to report capitalization.

⁴ Exclusive of 570.02 miles of track for which no capitalization was reported (includes 292.95 miles for 6 companies which failed to report capitalization and 277.07 miles leased from steam railroads, bridge companies, etc.), distributed as follows: 3.60 miles electric elevated and subway railways, 566.42 miles electric surface railways, 113.82 miles selected interurban lines, and 456.20 miles all other railways.

The long interurban and the short urban lines represent, in some respects, the two extremes of capitalization. The selection of the roads to be included in the two groups—selected interurban lines and selected small urban roads—however, was not made with the intention of including in the interurban group those roads that had the largest aggregate capital or the largest investment per mile of track, nor in the group of small roads those that showed the other extreme. There are roads not included in either of these groups which show a wider divergence in this respect. As explained on page 22, the selection was made with the object of including in each group a sufficient number of roads to be representative of the class, irrespective of their capitalization. The group of electric elevated and subway railways, representing as it does the most expensive track construction of any class of street or electric railways, has both a total and a net capitalization per mile of track nearly seven times larger than that reported for the remaining electric surface railways. Although the trackage of this group of electric elevated and subway roads constituted but 1.2 per cent of the total for all roads, its total capitalization formed 7.8 per cent of the total. The investments of the companies belonging to this group in securities and nonrailway property were equivalent to 9.5 per cent of their total capitalization compared with 10 per cent for the electric surface railways.

A similar review of the companies classified by character of service shows that the capitalization per mile of track for the selected interurban lines is somewhat less than that for all other railways, though nearly three times that for the small urban roads. This is due to the fact that the large urban systems, including the elevated and subway lines, fall under this classification into the "All other railways" group.

The investments of the small urban roads in securities and nonrailway property were equivalent to only 2.1 per cent of their total capitalization compared with 10 per cent for the group of "All other railways."

The average rate of dividends in 1907 for the several groups of companies is shown in the following tabular statement:

CLASSIFICATION GROUP.	AVERAGE RATE OF DIVIDENDS PAID ON—		
	Total stock.	Common stock.	Preferred stock.
Kind of system:			
Electric elevated and subway railways.....	5.05	5.41	2.38
Electric surface railways.....	2.39	2.28	2.01
Character of service:			
Selected interurban lines.....	0.75	0.49	1.54
Selected small urban roads.....	0.36	0.35	0.05
All other railways.....	2.96	2.78	3.21

It should be remembered that the capital stock of each group includes the nondividend-paying stocks as well as those on which dividends were paid, and

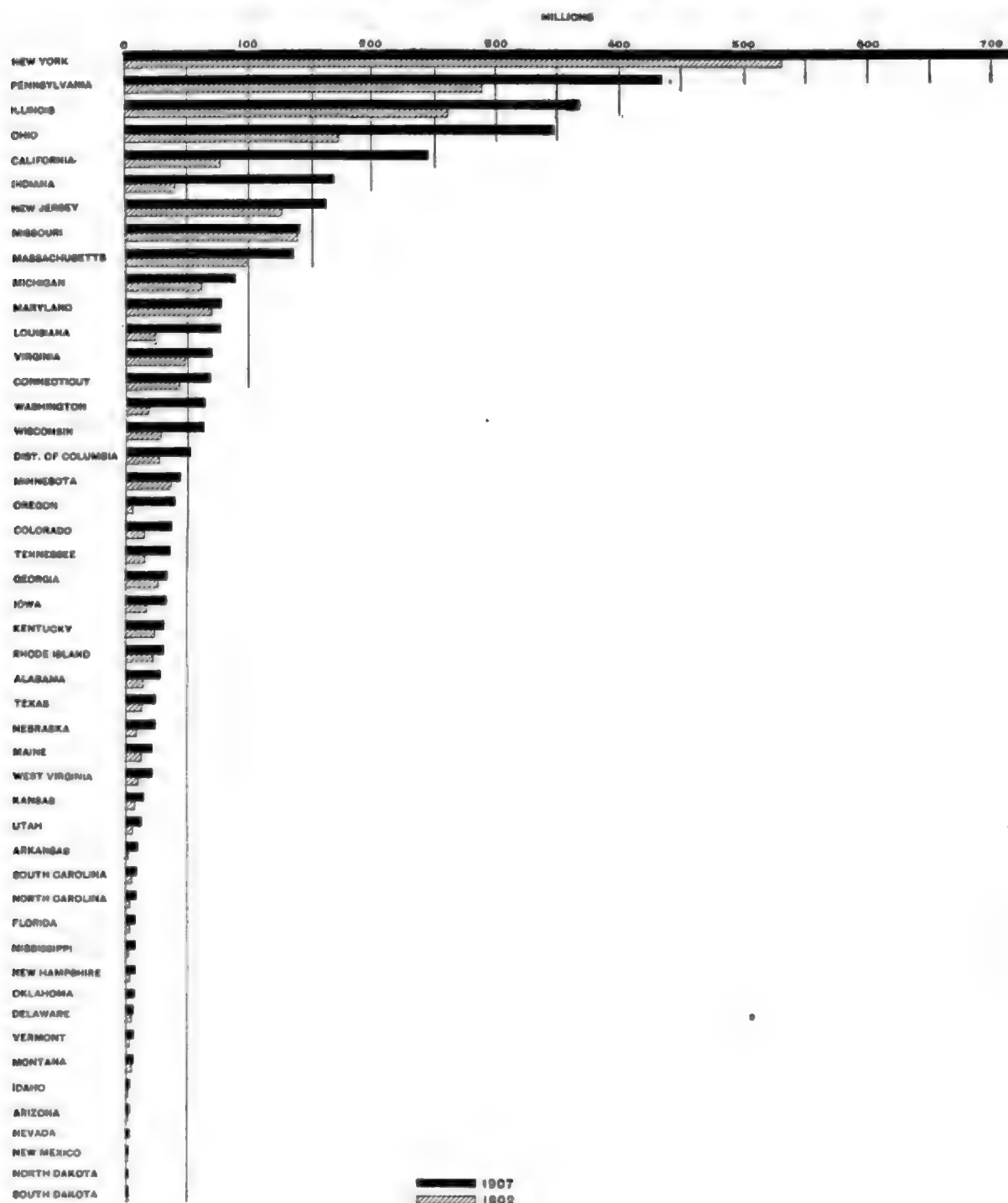
hence these percentages fail to indicate the average rate of return on the stocks which actually paid dividends. For example, in the small group of "Electric elevated and subway railways" the \$7,678,952 paid in dividends on common stock was paid on stock amounting to \$105,323,500, representing an average rate of 7.29 per cent, while the \$445,928 paid in dividends on preferred stock was paid on \$13,707,900, which gives an average rate of 3.25 per cent.

The total dividends disbursed by the elevated and subway companies formed 14.9 per cent of the total dividends paid by all companies, and represented a much higher average rate of return on their total stock outstanding than for the companies comprising any of the other groups.

Capitalization, by states.—In considering the statistics as to capitalization by states as given in Table 85, it should be remembered that the totals represent the aggregate capitalization of the companies credited to the respective states, and that in a number of instances companies have been accredited to different states at the censuses of 1902 and 1907. Thus at the census of 1902 the Bennington and Hoosick Valley Railway, which had 16.52 miles of track with a total capitalization of \$382,000, and which operated between Hoosick Falls, N. Y., and Bennington, Vt., was credited to New York state, although the track mileage was about equally divided between the 2 states. By 1907 the company had been reorganized as the Bennington and North Adams Street Railway, and the track in Vermont had been extended, so that it was accordingly treated as a Vermont concern. Several states now require all companies doing an interstate business to incorporate within the state (usually with only a nominal capitalization), although the property may be largely in another state and the original company may have been created elsewhere. For this reason it was impossible longer to assign companies to the states in which incorporated, and they were therefore assigned to the states in which the principal property or operating office is located.

The relationship existing between operating and lessor companies also affects the capitalization statistics when it is attempted to make comparisons for the same state for different periods. For example, in 1902 the Exeter, Hampton and Amesbury Street Railway Company was operating under lease a group of properties which were located in New Hampshire and Massachusetts, and as the statistics for lessor companies are shown in the census reports under the state of the operating company, the aggregate capitalization, both of the operating and the lessor companies, was credited to New Hampshire. In 1907 the properties which had formerly been operated under lease by the New Hampshire company were operating as separate units and assigned some to New Hampshire and some to Massachusetts.

DIAGRAM 4.—CAPITALIZATION OUTSTANDING, OF OPERATING AND LESSOR COMPANIES COMBINED, BY STATES AND TERRITORIES: 1907 AND 1902.



The companies credited to New York in 1907 reported the largest aggregate outstanding capitalization (\$714,494,687), those in Pennsylvania the second largest (\$433,004,263), and the railways in Illinois the third largest (\$367,533,800). These 3 states also led in 1902 with a capitalization of \$529,135,045, \$287,292,195, and \$260,085,683, respectively. South Dakota returned the smallest capitalization in 1907, \$85,000; and New Mexico the smallest in 1902, \$25,000.

As was the case in respect to the traffic reported, the states of the North Atlantic division had the largest proportion of the total capitalization at both censuses,

reporting a capitalization of \$1,122,542,269 for 1902 and \$1,576,798,676 for 1907, or 48.6 and 41.8 per cent, respectively, of the totals for the United States. The Western division made the largest gain of any geographic division in its percentage of the total, from 5.5 in 1902 to 10.8 in 1907, while the North and South Atlantic divisions showed a decrease in 1907.

Statistics showing, for each state and geographic division, the amount of capital stock and funded debt authorized and outstanding, the amount of dividends and interest paid, and the capitalization per mile of track for 1907 and 1902 are presented in Table 85.

TABLE 85.—TRACK, CAPITAL STOCK, FUNDED DEBT, AND CAPITALIZATION PER MILE OF TRACK, FOR OPERATING

	STATE OR TERRITORY.	Census.	Miles of track.	CAPITAL STOCK.				
				Total par value.		Common.		
				Authorized.	Outstanding.	Par value.		Dividends.
						Authorized.	Outstanding.	
1	United States.....	1907	34,403.56	\$2,508,054,336	\$2,097,708,856	\$2,098,885,736	\$1,776,920,076	\$44,960,796
2		1902	22,576.99	1,529,106,589	1,315,572,960	1,355,920,056	1,157,642,781	28,737,987
3	North Atlantic division.....	1907	13,713.37	1,013,623,590	888,781,012	927,733,660	800,462,512	31,353,126
4		1902	10,164.80	735,062,656	666,294,304	663,076,435	624,591,037	18,214,975
5	Maine.....	1907	424.05	11,380,000	10,944,713	10,325,000	9,909,713	154,944
6		1902	331.35	6,444,300	5,053,065	6,444,300	5,053,055	67,829
7	New Hampshire.....	1907	247.10	4,522,200	4,518,700	4,452,200	4,448,700	74,170
8		1902	167.65	2,403,200	2,333,200	2,353,200	2,283,200	8,250
9	Vermont.....	1907	124.31	3,900,000	3,370,000	3,900,000	3,370,000	18,000
10		1902	80.55	1,885,000	1,935,100	1,870,000	1,820,100	8,000
11	Massachusetts.....	1907	2,886.85	83,013,350	74,400,175	76,613,350	68,000,175	3,277,690
12		1902	2,625.65	70,115,000	59,378,002	63,715,000	52,978,002	2,670,455
13	Rhode Island.....	1907	419.92	24,555,400	24,555,400	24,355,400	24,355,400	850,000
14		1902	328.90	16,475,000	16,375,000	16,475,000	16,375,000	780,000
15	Connecticut.....	1907	781.15	21,707,100	20,371,900	12,544,200	11,505,200	121,257
16		1902	678.49	31,932,000	25,211,640	27,632,000	21,166,500	275,062
17	New York.....	1907	3,864.74	454,330,000	378,047,549	422,255,000	350,482,049	16,317,307
18		1902	2,809.91	300,461,806	276,205,072	294,396,905	270,374,935	6,820,754
19	New Jersey.....	1907	1,324.12	82,929,990	74,211,380	81,529,990	73,176,280	910,298
20		1902	861.28	68,645,250	68,173,440	68,220,250	67,178,440	425,140
21	Pennsylvania.....	1907	3,021.12	329,305,520	298,301,795	291,758,320	264,153,905	9,699,361
22		1902	2,480.91	235,711,100	211,728,495	211,765,900	191,291,115	7,173,485
23	South Atlantic division.....	1907	2,300.73	168,063,152	127,306,249	132,088,152	106,519,554	1,565,021
24		1902	1,670.15	116,257,300	81,422,171	92,682,300	72,855,900	681,240
25	Delaware.....	1907	95.93	2,902,000	2,901,995	2,732,000	2,732,000	72,300
26		1902	85.61	2,270,000	2,264,900	2,270,000	2,264,900	9,331
27	Maryland and District of Columbia.....	1907	712.21	72,248,500	48,409,050	49,748,500	39,914,050	725,000
28		1902	599.81	57,559,000	33,579,556	43,559,000	33,506,250	607,247
29	Virginia.....	1907	513.54	46,910,210	33,671,800	39,685,210	27,746,800	101,750
30		1902	359.30	20,359,000	21,812,000	24,634,000	17,087,000	270
31	West Virginia.....	1907	296.41	12,578,333	10,924,075	12,578,333	10,924,075	26,400
32		1902	140.00	4,924,500	4,273,000	4,624,500	4,273,000	22,000
33	North Carolina.....	1907	106.94	5,851,000	4,409,800	4,551,000	3,353,100	17,500
34		1902	46.32	3,275,000	1,995,625	2,825,000	1,637,600	.....
35	South Carolina.....	1907	131.26	4,295,000	3,944,200	3,695,000	3,354,200	.....
36		1902	76.98	2,891,400	2,589,400	2,791,400	2,489,400	720
37	Georgia.....	1907	354.18	18,117,100	18,110,400	14,367,100	14,390,400	443,771
38		1902	300.38	13,029,000	12,957,000	9,929,000	9,857,000	952
39	Florida.....	1907	118.26	5,761,000	4,834,800	4,721,000	4,104,800	168,400
40		1902	61.75	1,949,400	1,949,400	1,749,400	1,749,400	40,720
41	North Central division.....	1907	12,850.53	878,716,849	720,589,390	705,784,849	591,550,705	9,228,098
42		1902	7,415.32	538,157,793	441,747,219	444,214,470	370,900,478	8,549,730
43	Ohio.....	1907	3,767.10	260,824,300	230,845,875	212,088,500	190,033,050	3,114,706
44		1902	2,353.43	120,507,200	108,993,050	110,657,200	90,643,650	2,286,554
45	Indiana.....	1907	1,432.03	131,799,500	94,223,070	103,749,300	75,830,260	457,160
46		1902	946.06	19,471,710	16,935,028	17,301,377	15,245,987	.....
47	Illinois.....	1907	2,778.46	241,944,800	200,154,400	191,234,800	170,338,550	2,516,701
48		1902	1,635.20	205,514,173	180,827,416	159,618,173	134,819,316	4,484,722
49	Michigan.....	1907	1,275.03	40,790,000	38,007,400	35,715,000	34,388,400	560,750
50		1902	1,022.61	30,129,000	29,033,100	29,575,000	26,588,100	519,500
51	Wisconsin.....	1907	590.65	41,597,000	29,954,400	36,997,000	25,294,400	795,854
52		1902	416.50	23,344,000	15,178,000	18,719,000	10,553,700	30,563
53	Minnesota.....	1907	457.15	27,030,000	23,905,000	24,030,000	20,905,000	1,005,000
54		1902	338.17	25,300,000	23,280,000	20,800,000	18,780,000	600,400
55	Iowa.....	1907	639.84	27,740,000	20,603,046	23,609,000	18,061,846	204,500
56		1902	378.25	11,039,700	10,541,200	10,080,700	9,391,200	107,600
57	Missouri.....	1907	921.67	68,365,540	60,434,940	45,415,540	40,448,749	291,840
58		1902	758.38	90,592,000	68,334,100	68,002,000	50,354,400	313,337
59	North Dakota and South Dakota.....	1907	21.09	885,000	460,980	785,000	460,980	.....
60		1902	2.00	100,000	100,000	100,000	100,000	.....
61	Nebraska.....	1907	214.73	23,667,500	13,604,565	16,407,500	7,694,685	223,037
62		1902	113.66	6,125,000	6,012,125	5,485,000	5,312,225	200,000
63	Kansas.....	1907	249.88	14,013,000	8,625,785	13,613,000	8,125,785	52,460
64		1902	130.26	6,027,000	5,912,000	6,027,000	5,912,000	4,000

¹ The net capitalization per mile of track is based upon the total miles of track, less track for which no capitalization was reported, and total outstanding capitalization, less permanent or other investments, if any.

AND LESSOR COMPANIES COMBINED, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

CAPITAL STOCK—continued.			FUNDED DEBT.			Total capitalization outstanding.	Net capitalization per mile of track. ¹	
Preferred.		Dividends.	Amount authorized.	Amount outstanding.	Amount of interest.			
Par value.								
Authorized.	Outstanding.							
\$400,168,600 173,279,533	\$320,788,780 127,930,179	\$9,524,478 4,301,284	\$2,322,720,837 1,341,429,727	\$1,677,083,240 992,709,139	\$71,468,788 43,678,561	\$3,774,772,096 2,308,282,049	\$100,406 96,287	1 2
87,890,100 41,987,200	79,319,100 37,773,167	3,079,432 1,568,755	901,693,954 659,191,523	688,017,064 456,248,065	28,102,513 20,553,730	1,576,798,678 1,122,542,269	108,578 105,050	3 4
1,035,000	1,035,000	1,750	15,813,000 7,213,000	11,030,000 6,155,000	407,021 270,880	21,963,713 11,208,056	46,481 32,116	5 6
70,000 50,000	70,000 50,000		2,580,000 1,586,000	2,580,000 1,556,000	80,515 76,675	7,107,700 3,890,200	28,764 23,198	7 8
15,000	15,000	750	3,375,000 1,450,000	2,548,667 931,600	102,737 36,721	5,918,667 2,760,700	41,981 34,348	9 10
6,400,000 6,400,000	6,400,000 6,400,000	512,000 512,000	72,257,500 40,823,000	60,279,000 37,966,942	2,646,831 1,753,689	134,739,175 97,345,544	46,583 39,087	11 12
200,000	200,000		11,341,200 9,900,000	7,070,200 6,221,200	287,005 205,360	31,625,600 22,569,200	81,494 75,979	13 14
9,162,900 4,100,000	8,865,700 4,045,050	291,969	49,114,091 24,501,000	47,081,091 17,433,500	737,305 768,608	67,452,991 42,045,140	84,852 74,490	15 16
32,075,000 6,055,000	27,565,500 5,830,737	938,128 54,110	485,712,663 408,114,173	336,447,138 252,929,373	14,231,277 11,436,803	714,404,687 529,135,045	173,006 177,532	17 18
1,400,000 1,426,000	1,035,100 993,000	43,500 22,500	95,928,000 75,072,750	86,260,500 57,490,750	3,965,219 2,636,943	160,471,890 125,664,190	135,439 146,155	19 20
37,547,200 23,942,200	34,147,800 20,437,390	1,292,087 977,395	165,503,500 90,221,600	134,702,466 75,543,700	5,704,603 3,368,082	433,004,263 287,292,195	109,072 103,267	21 22
36,576,000 23,575,000	20,786,095 8,530,271	660,016 66,123	201,371,583 130,700,000	155,785,359 115,091,908	5,536,968 4,290,759	283,091,608 196,514,079	112,013 114,299	23 24
170,000	169,995		3,425,000 2,424,000	3,070,000 2,424,000	67,000 39,000	5,971,995 4,688,990	62,254 54,772	25 26
22,500,000 14,000,000	8,555,000 73,306	425,000	93,827,000 64,030,000	79,319,700 61,639,194	2,700,280 2,606,657	127,788,759 95,218,750	158,812 138,696	27 28
7,225,000 5,725,000	5,925,000 4,725,000	33,125	52,447,000 30,167,000	34,770,800 25,961,314	911,314 467,662	68,442,660 47,708,314	131,231 124,845	29 30
			14,623,333 7,600,000	10,406,500 5,208,400	509,143 220,969	21,330,575 9,582,000	70,732 68,443	31 32
1,300,000 450,000	1,038,700 337,965	5,000	8,161,250 2,825,000	3,887,750 1,880,500	190,615 80,310	8,297,550 3,876,125	64,214 70,250	33 34
600,000 100,000	600,000 100,000		5,700,000 3,680,000	4,760,000 3,336,000	228,050 161,259	8,750,200 6,925,400	56,768 78,973	35 36
3,750,000 3,100,000	3,750,000 3,100,000	200,016 33,000	18,903,000 17,700,000	16,789,600 12,081,500	897,400 642,712	34,900,000 20,039,100	88,436 86,687	37 38
1,030,000 200,000	730,000 200,000	20,000	4,335,000 2,304,000	2,775,000 1,531,000	112,988 62,220	7,609,860 3,480,400	63,942 56,363	39 40
172,932,000 93,943,333	129,038,085 67,846,741	3,311,495 2,081,804	778,077,300 413,539,204	507,149,700 324,579,043	25,181,533 14,010,213	1,287,730,090 799,329,262	90,262 89,808	41 42
48,740,000 9,830,000	40,812,825 9,220,000	1,039,401 344,000	156,909,000 73,648,500	116,289,000 61,242,000	5,204,963 2,350,693	347,134,873 170,135,050	79,901 71,806	43 44
26,030,000 2,173,333	18,393,710 1,689,141	249,898 33,974	92,974,300 25,592,637	72,063,350 23,142,477	3,151,628 952,219	168,287,320 40,077,505	82,307 61,976	45 46
50,750,000 46,000,000	20,795,850 23,708,100	353,928 261,243	254,292,000 134,616,667	167,379,400 99,538,267	7,064,031 4,110,070	267,533,800 200,085,083	115,341 135,507	47 48
5,065,000 3,245,000	4,219,000 2,445,000	120,780 92,500	58,319,000 43,018,000	48,623,900 32,590,800	2,344,763 1,501,111	87,233,300 61,029,900	63,298 56,233	49 50
4,600,000 4,625,000	4,000,000 4,024,900	272,333 270,000	51,887,000 28,281,400	32,308,250 13,038,350	1,292,035 624,205	62,072,050 28,236,950	71,326 66,004	51 52
3,030,000 4,600,000	3,000,000 4,600,000	210,000 270,000	21,684,000 14,768,000	20,912,500 13,226,000	1,050,325 864,422	44,817,300 36,506,000	95,587 107,962	53 54
4,077,000 960,000	2,631,200 950,000	15,000 10,000	25,636,000 10,000,000	12,804,500 6,770,333	660,785 344,839	33,497,546 17,311,533	55,070 45,641	55 56
22,950,000 21,900,000	18,986,200 17,979,700	727,160 709,287	86,455,000 77,840,000	80,836,000 71,474,816	3,798,020 3,087,404	140,270,949 139,808,916	150,217 132,205	57 58
100,000			300,000	300,000	16,000	766,980 100,000	36,509 80,000	59 60
7,200,000 700,000	6,199,900 699,900	294,995 30,800	12,250,000 2,750,000	9,540,000 2,395,000	423,375 119,750	23,404,565 8,407,125	106,286 73,967	61 62
400,000	400,000	28,000	15,171,000 3,375,000	6,190,800 1,115,000	246,608 55,600	14,716,865 7,027,000	56,917 46,766	63 64

¹ Gross capitalization without the deduction of permanent or other investments.

STREET AND ELECTRIC RAILWAYS.

TABLE 85.—TRACK, CAPITAL STOCK, FUNDED DEBT, AND CAPITALIZATION PER MILE OF TRACK, FOR OPERATING

	STATE OR TERRITORY.	Census.	Miles of track.	CAPITAL STOCK.				
				Total par value.		Common.		
				Authorized.	Outstanding.	Par value.		Dividends.
						Authorized.	Outstanding.	
65	South Central division.....	1907	1,905.91	\$130,487,200	\$119,067,530	\$94,877,200	\$85,395,330	\$1,479,584
66		1902	1,322.45	58,357,900	50,335,800	48,007,900	30,985,800	307,698
67	Kentucky.....	1907	399.13	16,970,000	16,047,400	13,670,000	12,757,400	499,738
68		1902	283.95	12,355,000	11,330,900	9,855,000	8,830,900	246,000
69	Tennessee.....	1907	297.50	17,590,000	17,499,100	11,030,000	10,970,200	79,678
70		1902	254.30	13,725,000	8,160,400	13,725,000	8,160,400	
71	Alabama.....	1907	291.66	13,325,000	12,980,900	9,825,000	9,480,900	40,868
72		1902	304.72	7,736,900	7,694,900	6,346,900	6,346,900	
73	Mississippi.....	1907	96.40	6,150,000	3,937,880	5,350,000	3,474,580	
74		1902	25.30	1,075,000	636,500	1,075,000	636,500	
75	Louisiana.....	1907	238.52	47,064,700	46,839,700	29,784,700	29,709,700	454,904
76		1902	198.52	12,599,700	12,484,900	7,409,700	7,384,900	107,198
77	Arkansas.....	1907	87.39	4,609,000	4,845,600	3,369,000	3,345,600	60,228
78		1902	52.49	1,065,300	885,300	1,065,300	885,300	
79	Oklahoma ¹	1907	100.44	5,150,000	4,145,800	5,000,000	3,995,800	150,000
80	Texas.....	1907	414.87	19,368,500	13,371,150	16,968,500	11,661,150	194,170
81		1902	303.27	9,831,000	9,150,900	8,431,000	7,750,900	14,800
82	Western division.....	1907	3,633.02	314,563,575	241,364,075	238,402,075	183,991,975	1,344,997
83		1902	1,604.18	81,363,951	72,773,506	77,930,951	60,349,506	924,238
84	Montana.....	1907	99.24	3,746,275	2,791,275	3,146,275	2,407,275	16,830
85		1902	63.21	2,095,613	2,045,613	2,095,613	2,045,613	
86	Colorado.....	1907	317.37	34,790,400	17,968,500	33,066,400	17,112,300	300,000
87		1902	234.53	8,185,904	7,802,804	7,961,904	7,338,804	181,230
88	Washington.....	1907	704.73	54,999,800	40,454,900	34,809,800	29,518,000	118,367
89		1902	228.93	11,115,000	11,030,400	8,115,000	8,030,400	37,528
90	Oregon.....	1907	253.41	22,928,900	22,428,900	15,391,400	14,891,400	160,000
91		1902	130.67	4,030,000	2,788,550	3,630,000	2,588,550	49,048
92	California.....	1907	2,013.49	179,348,000	147,734,600	136,296,000	114,247,100	749,800
93		1902	829.10	51,392,434	46,022,699	51,392,434	46,022,699	653,412
94	All other Western states and territories ²	1907	214.78	10,750,000	9,965,900	15,600,000	5,815,900	
95		1902	111.74	4,325,000	3,318,100	4,325,000	3,318,100	3,000

¹ The net capitalization per mile of track is based upon the total miles of track, less track for which no capitalization was reported, and total outstanding capitalization, less permanent or other investments, if any.

² Gross capitalization without the deduction of permanent or other investments.

CAPITALIZATION.

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AND LESSOR COMPANIES COMBINED, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

CAPITAL STOCK—continued.			FUNDED DEBT.			Total capitalization outstanding.	Net capitalization per mile of track. ¹	
Preferred.			Amount authorized.	Amount outstanding.	Amount of interest.			
Par value.		Dividends.						
Authorized.	Outstanding.							
\$35,610,000	\$34,272,300	\$1,211,535	\$136,401,000	\$99,586,117	\$4,732,848	\$219,253,947	\$96,649	65
10,350,000	10,350,000	409,100	57,361,000	43,224,100	2,000,014	93,509,900	69,343	66
3,300,000	3,290,000	126,200	21,390,000	15,726,000	756,646	31,773,400	81,454	67
2,500,000	2,500,000	125,000	14,930,000	12,304,300	591,672	23,535,200	82,865	68
6,500,000	6,528,900	205,000	22,805,000	19,348,000	977,083	36,847,100	122,948	69
			14,240,000	8,686,400	441,222	16,846,800	63,984	70
3,500,000	3,500,000	210,000	16,625,000	15,181,667	692,467	28,162,567	87,457	71
1,350,000	1,350,000	81,000	8,594,000	6,678,500	254,653	14,375,400	65,584	72
800,000	463,300		4,100,000	3,502,500	178,810	7,440,380	71,406	73
			700,000	644,000	32,175	1,270,500	50,217	74
17,300,000	17,130,000	544,335	46,274,000	29,145,000	1,333,103	75,964,700	198,631	75
5,100,000	5,100,000	256,000	10,929,000	10,010,000	476,530	22,494,900	113,313	76
1,500,000	1,500,000	45,000	5,356,000	4,453,000	212,823	9,298,600	90,924	77
			1,438,000	1,069,000	50,850	1,943,300	36,251	78
150,000	150,000		3,100,000	2,029,000	85,200	6,174,800	59,258	79
2,500,000	1,710,000	81,000	16,761,000	10,200,950	496,896	23,572,100	53,239	80
1,400,000	1,400,000	8,100	6,830,000	3,932,900	152,912	13,103,800	43,208	81
76,161,500	57,372,100	1,262,000	305,177,000	166,525,000	7,854,936	407,689,075	97,975	82
3,424,000	3,424,000	117,500	80,347,000	53,556,022	2,724,225	126,329,589	76,612	83
600,000	374,000	18,700	2,200,000	1,550,000	77,500	4,331,273	39,705	84
			1,275,000	1,275,000	58,375	3,320,613	52,533	85
1,724,000	886,200	7,124	34,975,000	19,450,000	981,522	37,448,500	80,686	86
224,000	224,000		13,065,000	8,395,560	443,145	15,958,364	68,911	87
20,100,000	10,936,900	438,176	62,577,000	23,414,000	990,714	63,868,900	75,702	88
3,000,000	3,000,000	112,500	9,290,000	7,747,813	374,168	18,784,213	82,052	89
7,537,500	7,537,500	375,000	25,450,000	16,599,000	861,963	30,027,000	83,202	90
200,000	200,000	5,000	6,130,000	2,737,000	128,719	5,525,650	40,430	91
42,050,000	33,487,500	423,000	162,015,000	96,812,400	4,564,559	244,547,000	114,681	92
			47,367,000	30,539,500	1,579,043	76,561,569	90,166	93
4,150,000	4,150,000		17,960,000	8,069,000	378,657	18,695,500	81,779	94
			3,230,000	2,861,150	140,780	6,179,250	40,242	95

¹ No company reported in 1902.² Includes states and territories as follows: 1907—Idaho, New Mexico, Arizona, Utah, and Nevada. 1902—Idaho, New Mexico, Arizona, and Utah.

CHAPTER VII.

FINANCIAL OPERATIONS.

INTRODUCTION.

Form of accounting.—Statistics of the financial transactions of street and electric railways have been collected in conformity with the standard classification of accounts and form of report adopted by the American Street and Interurban Railway Accountants' Association. This classification and this form are practically the same as those used at the census of 1902, which were devised by the Street Railway Accountants' Association of America. The system of uniform accounts used at this census has the approval of practically all of the electric railways of the country and is in use either in its entirety or in a modified form by the majority of them. The method of accounting in use by some companies, however, differed in many important respects from the standard form, while in the case of other companies there were slight differences that could be readily adjusted. For all companies that furnished financial statistics, however, it was found possible to rearrange the details so as to supply totals for the main items enumerated in the standard form of report. As a rule, the statistics were obtained from bookkeeping entries, but in a few cases it was necessary to resort to estimates for the segregation of totals.

Allied industries.—Complications and difficulties were encountered most frequently in obtaining financial statistics for railways that were operated in connection with other industries, since often in such cases separate accounts were not kept for the various branches of the business. These companies may be arranged in four classes, as follows:

1. *Electric-railway companies operating pleasure resorts.*—Parks, summer hotels, theaters, and pleasure resorts, when operated by electric railways for the purpose of attracting travel, were treated as a part of the railway system, and their income and expenses were included in the railway income account, the cost or value of such properties being regarded as a part of the assets of the railway.

2. *Electric-railway companies selling electric current.*—For census purposes these companies were in turn divided into three groups, as follows:

(a) Companies that controlled or operated light and power plants but that could furnish separate data as

to capitalization, equipment, income, and expenses for the two branches of industry. In such cases separate reports were made and the data for the light and power plants were excluded from the report on electric railways.

(b) Companies that controlled or operated light and power plants and could supply separate data for the two branches of industry in the case of equipment, income, and expenses but not in the case of capitalization. In such cases the entire capitalization was included in the railway report, which also included the net income from the lighting plant, the total taxes, and all other fixed charges. The cost or value of the lighting plant was necessarily included in the cost or value of the entire plant, but was shown in the balance sheet as "other permanent investments." With these exceptions the statistics for such lighting plants were included in the report for central electric light and power stations.

(c) Companies which could not segregate any of the statistics so as to make separate reports for the two branches of the industry. In such cases the gross income and expenses of the light and power plant were included in the income and expense account of the railway, and the cost of construction and equipment of the light plant formed a part of the total reported for the railway company. Where possible, however, separate amounts for the two branches of service are shown in the detailed expense account, except under the heading of "power-plant expense," which in nearly all cases represents the total expense for both railway and lighting operations.

3. *Companies operating both steam and electric railways.*—These companies may be subdivided into the three following groups:

(a) Companies for which a segregation could be made of the statistics so as to include complete data for the electric railways in this report.

(b) Companies for which it was necessary to make a partial combination of the statistics, and to include in the report for electric railways the net income from the steam road and the total taxes and other fixed charges in the income account and the cost or value of the steam road as "other permanent investments" in the balance sheet of the electric road.

(c) Companies for which no separate financial statistics concerning their electric-railway properties could be obtained.

4. *Companies carrying on other industries, such as gas or ice plants, waterworks, ferries, etc., in connection with the operation of the electric railway.*—In such cases the net income from the secondary industry, and the total taxes and other fixed charges were included in the income account, and the cost or value of the plant, in the balance sheet of the railway, as "other permanent investments." An exception to this rule was made in the case of 2 companies operating ferries, which contended that the ferry service was an integral part of the railway operations, and that no separation could be made of their financial statistics. The income, expenses, etc., of the ferries were therefore treated as a part of the corresponding accounts of the railway.

The following statement, classifying electric-railway companies according to the extent to which they carried on secondary enterprises, throws light on the difficulties of untangling intermingled accounts, in order to present separately, as far as possible, the financial statistics of railway operations.

In some instances the income from these secondary enterprises forms a large proportion of the total income of the company, and when the primary and secondary enterprises are carried on by the employment of the same capital, it is in most cases impossible to separate the statistics so as to show reliable figures pertaining exclusively to the operation of the railways. The income, whether gross or net, from the secondary enterprises is shown separately in the detailed income account, and the expenses of operation, when included, are also segregated as far as possible in the detailed statement of expenses.

Operating companies, classified according to number and character of secondary enterprises: 1907.

NUMBER AND CHARACTER OF SECONDARY ENTERPRISES.	Number of operating companies furnishing financial data.
Total.....	939
Electric railways only—no secondary enterprise.....	663
Electric railways in connection with steam railroads.....	14
Electric railways and one or more nonrailway enterprises.....	232
One other enterprise.....	129
Sale of electric current.....	109
Purchase and sale of real estate.....	7
Operation of ferries.....	4
Manufacture of gas—commercial.....	1
Some one enterprise of a miscellaneous group, including steam heating, manufacturing, operation of bridges or turnpikes, etc.....	8
Two other enterprises.....	84
Sale of electric current and commercial manufacture of gas.....	39
Sale of electric current and operation of waterworks.....	5
Sale of electric current and purchase and sale of real estate.....	4
Sale of electric current and manufacture of ice.....	4
Sale of electric current and operation of a ferry.....	1
Sale of electric current and some one enterprise of a miscellaneous group.....	28
Manufacture of gas or ice, or purchase and sale of real estate, and some one enterprise of a miscellaneous group.....	3
Three other enterprises.....	14
Sale of electric current, purchase and sale of real estate, and some one enterprise of a miscellaneous group.....	4
Sale of electric current, manufacture of gas, and some one enterprise of a miscellaneous group.....	3
Sale of electric current, manufacture of ice, and some one enterprise of a miscellaneous group.....	3
Sale of electric current, manufacture of gas, and operation of waterworks.....	2
Sale of electric current, manufacture of gas, and operation of a ferry.....	1
Sale of electric current, manufacture of ice, and operation of waterworks.....	1
Four other enterprises.....	5
Sale of electric current, manufacture of gas, operation of waterworks, and some one enterprise of a miscellaneous group.....	2
Sale of electric current, purchase and sale of real estate, operation of a ferry, and some one enterprise of a miscellaneous group.....	1
Sale of electric current, operation of waterworks, manufacture of ice, and some one enterprise of a miscellaneous group.....	1
Manufacture of gas and ice, purchase and sale of real estate, and operation of a ferry.....	1

Companies that failed to furnish financial statistics.—
There were 6 operating railways in 1907 and 18 in 1902

that failed to furnish any information concerning their
financial transactions.

TABLE 86.—OPERATING COMPANIES THAT FAILED TO REPORT FINANCIAL DATA: 1907 AND 1902.

STATE.	Name of company.	Miles of track.	Number of fare passengers.	Passenger-car mileage.
1907				
	Total.....	292.05	18,848,177	7,047,925
Connecticut.....	New York, New Haven and Hartford R. R. Co. (New Canaan branch).....	8.87	260,523	124,728
Massachusetts.....	New York, New Haven and Hartford R. R. Co. (Nantasket division).....	17.13	572,222	89,234
New Jersey.....	West Jersey and Seashore R. R. Co. (Atlantic City and Longport branch).....	18.55	5,735,923	1,179,056
New Jersey.....	West Jersey and Seashore R. R. Co. (Camden and Atlantic City branch).....	132.76	3,870,913	3,546,533
Rhode Island.....	New York, New Haven and Hartford R. R. Co. (Providence, Warren and Bristol branch).....	34.85	7,191,044	1,399,647
Virginia.....	Norfolk and Southern Ry. Co. (electric division).....	60.79	1,214,752	747,723
1902				
	Total.....	378.90	44,280,436	12,530,840
Arizona.....	Phoenix Ry. Co.....	12.00	750,000	255,500
Colorado.....	Boulder Railway and Utility Co.....	4.08	(1)	(1)
Connecticut.....	New York, New Haven and Hartford R. R. Co. (New Canaan branch).....	9.43	204,900	139,602
Connecticut.....	New York, New Haven and Hartford R. R. Co. (Berlin system).....	25.89	1,645,008	464,464
Illinois.....	South Chicago City Ry. Co.....	38.42	4,532,047	1,399,985
Illinois.....	Galesburg Electric Motor and Power Co.....	17.00	1,750,000	565,750
Indiana.....	Hammond, Whiting and East Chicago Electric Ry. Co.....	24.90	1,959,616	590,234
Kansas.....	Kansas City-Leavenworth R. R. Co.....	39.00	(1)	(1)
Massachusetts.....	New York, New Haven and Hartford R. R. Co. (Nantasket division).....	39.33	1,039,810	323,032
New Jersey.....	West Jersey and Seashore R. R. Co. (Atlantic City and Longport branch).....	19.03	5,206,304	1,438,770
Ohio.....	Wellston and Jackson Belt Ry. Co.....	10.50	928,925	207,112
Rhode Island.....	New York, New Haven and Hartford R. R. Co. (Providence, Warren and Bristol branch).....	31.50	4,320,894	1,123,270
South Dakota.....	Rapid City Street Ry. Co.....	2.00	(1)	(1)
Virginia.....	Southside Railway and Development Co.....	12.85	1,248,059	541,503
Virginia.....	Old Dominion Ry. Co.....	12.21	(1)	(1)
Virginia.....	Richmond Traction Co.....	18.75	6,795,946	2,248,624
Virginia.....	Richmond Passenger and Power Co.....	25.21	9,517,614	1,873,533
Virginia.....	Virginia Passenger and Power Co. (including West Hampton Park Ry. Co.).....	37.00	4,184,313	1,349,461

¹ Not reported.

The companies from which no financial statistics were secured owned only nine-tenths of 1 per cent of the total trackage and carried one-fourth of 1 per cent of the fare passengers reported for 1907; the corresponding percentages for 1902 were 1.7 for the trackage and nine-tenths of 1 per cent for the passengers reported. The fact that the number of companies and the proportion of traffic for which no financial data were secured were much smaller in 1907 than in 1902 should be kept in mind when the increases shown in the financial statistics are considered. The difference in completeness of the two census reports gives statistical increases for 1907 that are unreal, especially for Illinois, Indiana, Kansas, and Virginia, where companies that failed to report financial statistics in 1902 furnished complete reports in 1907.

No company refused to furnish statistics for the census of 1907. The 6 railways for which financial data were not obtained were operated in connection with steam railroads, and the companies claimed that the accounts of the two were so intermingled that it was impossible to make a satisfactory segregation of capitalization and financial data.

Companies operating part of year.—At the census of 1902, statistics were presented separately for 57 operating companies that made reports covering less than twelve months. These were not all the companies for which the reports indicated less than a year's operation, but only those whose part-time operations

were considerable. At the census of 1907 there were 55 operating companies that made reports for less than twelve months.

Track and traffic of companies operating only a part of the year: 1907 and 1902.

	1907	1902
Number of companies.....	55	57
Miles of track.....	800.16	831.17
Number of fare passengers.....	12,990,577	37,738,491
Car mileage.....	5,279,909	13,020,048

In addition to these 55 companies operating only a part of the year 1907 there were 16 companies whose operations were largely confined to the summer or tourist season. These are noted in Table 183, but inasmuch as their organization expense, taxes, and other fixed charges were accruing and payable for the entire year, they were treated as operating the whole year and were not included with the part-time companies. Of the 55 companies treated as operating only a part of the year in 1907, 50 were new concerns starting to operate during the year, 3 were in litigation or in the hands of receivers, and the other 2 had changed ownership during the year.

The average time of operation of the companies that operated only a part of the year was slightly over five months in 1907 as compared with six and two-thirds months in 1902. While such companies were only two fewer in 1907 than in 1902, they were of far less

relative importance, reporting but 2.3 per cent of the trackage for all companies and only two-tenths of 1 per cent of the number of fare passengers, as compared with 3.7 per cent of total track and eight-tenths of 1 per cent of the number of fare passengers for the 57 companies of 1902. The inclusion of these companies does not materially affect the financial results of operation, as shown by subsequent tables.

Census meaning of state totals.—In considering the state totals for the financial data, it should be remembered, as pointed out in the earlier chapter of traffic, that the totals do not necessarily represent the exact statistics of income, expenses, etc., of the traffic within the several state lines—since a number of companies operated track in more than one state—but rather of the traffic of companies that were credited to the respective states.

Companies in Hawaii and Porto Rico.—The financial statistics of railways in Hawaii and Porto Rico¹ are appended to the main tables; but they are not included in the totals—which relate only to railways in continental United States—and they are not considered in the text.

I.

INCOME ACCOUNT.

An analysis of the financial transactions of street and electric railways requires a segregation of the statistics for operating and lessor companies, and for income and expenses, and a grouping of the various items for roads operated under peculiar conditions. These segregations are made in subsequent sections of this chapter. The present section, on the "income account," is a general survey of the income and expense accounts of all companies.

All income from railway operations originates with the operating companies, but a portion of it is paid as rentals to nonoperating lessor companies, and is reported by them as income. Therefore, to avoid duplication, it is necessary to preserve the distinction between the two classes of companies. The number and importance of the lessor companies was not appreciated at the time the census of 1902 was started, and no provision was made for the collection of reports from them; but the statistics for many of them were compiled from the rentals reported as paid by the operating companies and from information obtained from street-railway journals and similar sources. For the 1907 census all of the reports for lessor companies have been prepared from information furnished by the companies.

Gross income.—The gross income of the 1,230 operating and lessor companies which reported financial data amounted to \$477,657,503 in 1907. Of this amount, \$47,500,933 was reported by the lessor companies as income from rentals paid by the operating

companies, and should be deducted to ascertain the true total for all companies, which was \$430,156,570 as compared with \$250,526,642 in 1902, an increase of \$179,629,928, or 71.7 per cent. These totals include a considerable amount of income derived from miscellaneous sources by both operating and lessor companies, which can properly be considered as a part of the income of railway companies, though not derived from the operation of the roads. Moreover, the income derived from miscellaneous sources includes, for 1907, an item of \$3,255,618 as income from interest on bonds and dividends on stocks of other electric railways. This involves a duplication in the statistics of gross income reported by all companies for the United States as a whole, since it represents the income from electric-railway securities which are held by other operating railway companies. The amount of the duplication for 1902 can not be determined.

Such items as operating earnings, operating expenses, and net earnings from operation pertain exclusively to operating companies, and the gross income for these companies is shown in Table 87, while the income for the lessor companies is given in Table 94, and for operating and lessor companies combined in Table 96.

TABLE 87.—Gross income of operating companies, by source: 1907 and 1902.

SOURCE.	GROSS INCOME.				
	1907	1902	Per cent of increase.	Per cent of total.	
				1907	1902
Gross income.....	\$429,744,254	\$250,504,627	71.6	100.0	100.0
Operating earnings, total.	418,187,858	247,553,999	69.9	97.3	98.8
Passengers.....	382,132,494	233,821,548	63.4	88.9	93.3
Chartered cars.....	705,361	303,028	132.3	0.2	0.1
Freight.....	5,231,215	1,048,097	403.9	1.2	0.4
Mail.....	646,573	432,080	49.6	0.2	0.2
Express.....	1,560,402	401,672	288.6	0.4	0.2
Sale of electric current	20,093,302	7,701,574	160.8	4.7	3.1
Miscellaneous sources.	7,818,209	3,833,420	102.9	1.8	1.5
Miscellaneous income.....	11,556,396	2,950,628	291.7	2.7	1.2

¹ Exclusive of reports for 6 companies which failed to furnish this information.

² Exclusive of reports for 18 companies which failed to furnish this information.

Aside from the enormous increase shown in the annual gross income of operating companies, the most interesting fact developed by this table is the absolute and relative increase in the income from sources other than the operation of passenger cars. The income from freight and express business in 1907 was almost five times as great as in 1902, an increase which is traceable to the growth of business on the interurban lines. The amount derived from the sale of electricity to other companies, or to other individuals or corporations, has increased almost threefold, while the amount of miscellaneous income not from operation is almost four times as great. The increase in these items has reduced the proportion derived from passengers by 4.4 per cent.

¹ See also p. 37.

Next to ascertaining the increase in the amount of income derived from the different sources, it is of interest to ascertain the states in which the greatest increases have occurred, and this is shown by Table 88.

TABLE 88.—Gross income of operating companies, by states and geographic divisions: 1907 and 1902.

STATE OR TERRITORY.	1907		1902		Per cent of increase in gross income.
	Number of companies.	Gross income.	Number of companies.	Gross income.	
United States..	1939	\$429,744,254	1709	\$250,504,627	71.6
North Atlantic division....	385	197,226,943	359	132,794,796	48.5
Maine.....	17	2,390,197	10	1,571,562	45.9
New Hampshire.....	16	1,062,182	7	604,131	80.8
Vermont.....	10	654,252	9	249,228	82.3
Massachusetts.....	62	31,073,962	74	23,633,410	31.5
Rhode Island.....	5	4,429,037	7	2,904,260	30.4
Connecticut.....	8	7,378,986	21	4,335,775	69.4
New York.....	101	91,685,673	96	60,881,780	50.6
New Jersey.....	24	13,082,658	25	8,176,923	60.0
Pennsylvania.....	122	45,706,986	98	30,357,727	50.6
South Atlantic division....	100	29,604,986	75	15,164,235	95.2
Delaware.....	4	758,183	3	500,659	61.5
Maryland and District of Columbia.....	19	12,132,593	18	7,893,313	53.7
Virginia.....	22	5,401,415	16	1,667,022	224.0
West Virginia.....	15	2,588,726	8	1,102,171	134.9
North Carolina.....	11	1,295,477	7	442,467	192.8
South Carolina.....	7	1,336,457	7	653,736	104.4
Georgia.....	12	4,729,595	10	2,475,224	98.7
Florida.....	10	1,371,541	6	529,743	158.9
North Central division....	293	135,283,571	235	74,272,890	82.1
Ohio.....	73	31,274,901	62	16,569,851	88.4
Indiana.....	33	11,496,768	26	3,812,076	201.5
Illinois.....	70	40,951,622	48	25,029,257	63.6
Michigan.....	24	11,031,974	24	6,321,173	69.2
Wisconsin.....	20	6,692,817	17	3,923,884	69.8
Minnesota.....	5	7,026,506	5	3,737,648	89.3
Iowa.....	24	4,391,140	22	2,403,834	82.7
Missouri.....	14	18,082,732	16	10,734,692	68.5
North and South Dakota.....	5	112,129	.....	.....	.....
Nebraska.....	8	2,741,104	4	1,148,994	138.8
Kansas.....	17	1,478,846	11	370,981	299.2
South Central division....	90	26,353,014	66	11,266,290	131.4
Kentucky.....	13	4,791,933	12	2,933,900	63.3
Tennessee.....	9	4,480,991	8	1,866,825	140.0
Alabama.....	10	3,467,479	9	1,697,351	131.6
Mississippi.....	8	906,289	5	258,654	250.4
Louisiana.....	11	5,994,975	8	2,910,244	106.0
Arkansas.....	8	1,275,396	7	871,800	243.3
Oklahoma.....	8	577,957	.....	.....	.....
Texas.....	23	4,857,997	17	1,647,846	213.9
Western division....	91	41,275,740	67	16,896,416	144.4
Montana.....	5	902,621	5	462,023	83.5
Colorado.....	11	4,683,254	7	2,227,766	101.2
Washington.....	14	8,402,500	8	2,542,906	230.4
Oregon.....	8	3,627,960	6	1,042,805	247.9
California.....	41	21,545,797	33	9,967,638	116.2
All other Western states and territories.....	12	2,313,519	6	612,988	277.4

1 Exclusive of 6 companies which failed to furnish this information.

2 Exclusive of 18 companies which failed to furnish this information.

3 Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.

Kansas shows the largest percentage of increase, followed by Mississippi, Oregon, Arkansas, Washington, and Virginia, in the order named. The development of the industry in all of these states, however, is of comparatively recent origin, and the amounts involved are small as compared with those reported for the more important states, such as New York and

Pennsylvania, where the amount of the increase alone is greater than the total income reported for any of the states above referred to.

Of the geographic divisions, the Western shows the greatest percentage of gain, followed by the South Central, South Atlantic, and North Central, in the order named. The relative increase for each of the divisions referred to is greater than the average for the country at large, while that for the North Atlantic division is below the average for the United States. This further appears in the following statement, which gives the per cent distribution of the number of companies and of the gross income, by geographic divisions, at the two census periods:

Per cent distribution of number of operating companies and gross income of operating companies, by geographic divisions: 1907 and 1902.

DIVISION.	PER CENT OF TOTAL FOR UNITED STATES.			
	Number of companies.		Gross income.	
	1907	1902	1907	1902
United States.....	100.0	100.0	100.0	100.0
North Atlantic.....	28.9	44.6	45.9	53.0
South Atlantic.....	10.0	9.4	6.9	6.1
North Central.....	31.2	29.4	31.5	29.6
South Central.....	9.6	8.3	6.1	4.5
Western.....	9.7	8.4	9.6	6.7

It is evident that the North Atlantic division, with its relatively dense population, earlier reached a point of fairly complete development of electric railways, and that the other divisions have now begun to make a similar development that gives them a relative gain in the census figures. The 6 states showing the largest gross income are New York, Pennsylvania, Illinois, Ohio, Massachusetts, and California, representing 3 geographic divisions. The combined gross income reported for these states formed 61 per cent of the total income for 1907 as compared with a corresponding percentage of 66.5 in 1902.

Condensed income account of operating companies.—Table 89 is a consolidation of the income accounts for the two censuses of all operating companies that furnished financial statistics. For some companies the income account contains what is known as book-keeping entries, such as amounts of taxes or other fixed charges which accrued during the year covered, but were not paid in that year, and therefore it does not agree with an actual cash statement of receipts and expenditures. Such statements, however, reflect the true financial standing of the companies at the end of the year covered by the reports.

TABLE 89.—Condensed income account of operating companies: 1907 and 1902.

ACCOUNT.	1907	1902	Per cent of increase.
Number of companies.....	1 639	1 799	17.5
Gross income.....	\$429,744,254	\$250,504,637	71.6
Operating earnings.....	418,187,834	247,653,909	68.9
Operating expenses.....	251,309,232	142,312,597	79.6
Net earnings from operation.....	166,878,606	105,341,402	58.6
Miscellaneous income.....	11,556,386	2,930,628	291.7
Gross income, less operating expenses.....	178,435,022	105,341,402	64.9
Deductions from income, total.....	138,094,710	77,505,033	78.0
Taxes.....	19,755,802	13,078,809	51.0
Interest.....	63,740,744	38,085,911	67.4
On funded debt.....	53,796,825	35,223,264	52.6
On other debt.....	9,974,219	2,862,637	249.4
Rent of leased lines and terminals.....	48,022,506	25,518,225	88.2
Miscellaneous deductions.....	6,375,774	912,018	621.0
Net income.....	40,340,286	30,596,977	31.8
Dividends.....	26,454,732	15,882,110	66.6
Surplus.....	13,885,554	14,714,867	5.6

¹ Exclusive of 6 companies which failed to furnish this information.² Exclusive of 18 companies which failed to furnish this information.³ Decrease.

This condensed form of income account conveys an idea only of the magnitude and relative importance of the totals for the principal accounts. It should be considered in connection with the detailed statistics of operating earnings and expenses, deductions from income, and general results of operation, which are shown in subsequent tables. The table may be regarded as representing all operating companies looked at as constituting a single consolidated system. It indicates that in the year 1907 as compared with 1902 there had been a larger percentage of increase in operating expenses than in operating earnings, thus relatively reducing the net earnings from operation, but that the earnings from miscellaneous sources had increased by a very large ratio, so that the percentage of increase in the gross income less operating expenses was not much less than the percentage of increase in operating earnings. The fixed charges and miscellaneous deductions from income show a large percentage of gain, and the amounts paid in dividends also increased largely. The result of all these transactions was an actual decrease in the surplus funds of the railways at the end of 1907 as compared with the amount indicated at the end of 1902. A decrease in the surplus account does not necessarily reflect an unfavorable financial condition, since it may be the result of changes in financial policy or bookkeeping practice rather than a change in traffic conditions. For example, large amounts are reported for some items under miscellaneous deductions from income in 1907 that did not appear in 1902, particularly under charges for depreciation and sinking-fund accounts.

The changes in the relative importance of the several objects for which the gross income was employed is shown by the percentages in Table 90.

In consolidating the totals for all roads the high and low percentages counterbalance each other to some extent, and the result is a composite showing which can not be accepted as indicating the actual conditions for any particular company or even the typical conditions in the industry. There were increases of 1.7 in

the percentage of gross income which was paid for operating expenses and of 1.1 in the percentage represented by deductions from income. The relative amount paid in dividends was about the same for the two years, while the percentage reported as surplus decreased by 2.7. Of the items entering into fixed charges or deductions from income, taxes¹ and interest have decreased in the percentage which they represent of the total, while rentals of leased lines and miscellaneous deductions have increased. The ratio of operating expenses to operating earnings is considered elsewhere.²

TABLE 90.—Per cent distribution, by accounts, of gross income of operating companies: 1907 and 1902.

ACCOUNT.	PER CENT OF GROSS INCOME.	
	1907	1902
Gross income.....	100.0	100.0
Operating expenses.....	58.5	59.8
Deductions from income, total.....	32.1	31.0
Taxes.....	4.6	5.2
Interest.....	14.8	15.2
On funded debt.....	12.5	14.1
On other debt.....	2.3	1.1
Rent of leased lines and terminals.....	11.2	10.2
Miscellaneous deductions.....	1.5	0.4
Dividends.....	6.2	6.3
Surplus.....	3.2	5.9

Net income, dividends, and surplus.—The net income is obtained by deducting the operating expenses and various fixed charges from the gross income. The net income of all operating companies combined in 1907 was \$40,340,286 as compared with \$30,596,977 in 1902, an increase of \$9,743,309, or 31.8 per cent. There were 668 companies in 1907 that reported a net profit on the year's operations, amounting in the aggregate to \$51,201,981; 4 companies reporting an even balance, neither profit nor loss; and 267 companies that reported a net loss on the year's operations, amounting in the aggregate to \$10,861,695. The difference between these two sums, \$40,340,286, represents the net income for all companies regarded as one entire system. During 1902 there were 565 companies that reported a net profit, amounting in the aggregate to \$34,352,684; one company that reported an even balance; and 233 companies that reported a net loss on the year's operations, amounting in the aggregate to \$3,755,707 (see Table 91). In other words, 71.1 per cent of the companies reporting financial data in 1907 and 70.7 per cent in 1902 made a net profit, while 28.4 per cent in 1907 and 29.2 per cent in 1902 reported a net loss on the year's business. The net income for the companies reporting a profit for 1907 exceeded the net income for the same class of companies in 1902 by \$16,849,297, or 49 per cent.

It is interesting to note that profits of profit-making companies and losses of loss-taking companies were

¹ For explanation of the proportionate decrease in taxes, see p. 160.² See p. 175.

both much greater per company in 1907 than in 1902. Thus the net profit per company reporting a profit was \$76,650 in 1907 as compared with only \$60,801 in 1902, while the net loss per company reporting loss was \$40,681 in 1907 as compared with only \$16,119 in 1902. The gains per company in 1907 were 26.1 per cent greater than in 1902, while the losses per loss-taking company were 152.4 per cent greater. The 7 large companies which reported a deficit for 1907 (see p. 123) were responsible for much of the increase in the average loss per company from 1902 to 1907.

It is the practice of railway companies to regard taxes, interest, and rentals paid lessor companies as fixed charges, and they have therefore been deducted from the gross income in order to secure the net income from which the dividends and surplus are obtained. The interest on bonds, however, is as truly a part of the return to railway investors as dividends. Rentals paid lessor companies are also a return to the capital invested in the industry, because they become interest and dividends on the securities of the lessor companies. There are numerous cases in which the operating and lessor companies are virtually owned by the same persons. Therefore a combination of the accounts for operating and lessor companies, as given in Tables 96 and 106, is necessary in order to arrive at the total disbursements in the form of interest and dividends.

While there were proportionately greater charges against the gross income of operating companies in 1907 than in 1902, with the result that net income represented a smaller percentage of gross income, the holders of capital stock fared better in the division of the net income, as in 1902 slightly less than 52 per cent of the net income was appropriated for dividends, while nearly 66 per cent of the net income in 1907 was used for this purpose.

The increased payments of dividends¹ at this census caused a decrease of 5.6 per cent in the amount of surplus reported, as compared with 1902. Certain charges or adjustments are generally made from the surplus for the year, but as there is a lack of uniformity among the individual companies both as regards the practice itself and as regards the charges or adjustments to be made, the census statistics relating to general income account do not carry the analysis further than the surplus.

Condensed income account of operating companies, by states and geographic divisions.—A clear understanding of the financial operations for the census years requires a study of the statistics for the separate companies, but it is impracticable and contrary to the practice of the Bureau of the Census to publish separately the financial data furnished by any company. The grouping by states and geographic divisions, which is given in Table 104, localizes the statistics to some extent.

¹ For detailed analysis of dividends, see p. 100.

This table shows the operating earnings, and, in addition to the other items of the condensed income account, it gives the net income of all companies reporting net income and the total deficit of all companies reporting a deficit. The net result of the year's operations, whether a profit or a loss, is one of the most important facts to be obtained from the financial statistics. While in all but a few of the states some companies reported a deficit at both censuses, in only 1 state—New Jersey—does the total deficit for 1907 exceed the net income of the companies reporting a profit. For each of the other states a net profit was reported for all companies considered as a whole. Of the companies in New Jersey reporting financial data, 16 reported deficits and 8 net income balances. Several of the largest railway companies in the country returned a large net deficit for the year's operation, but, with the exception mentioned, the net income balances of other companies were sufficient in every state to overcome the deficit.

The states showing the largest deficits are New York, California, Pennsylvania, and Illinois, in the order named, and 6 companies in these states—2 each in Pennsylvania and Illinois and 1 each in New York and California—show nearly six-tenths of the total deficit for the United States. The causes operating to produce these deficits can be traced in some cases to large payments in rentals to lessor companies. The earthquake and fire of 1906 in San Francisco entailed a heavy expense and curtailed revenues for the lines of that city in 1907. Some of the roads reporting deficits are in the hands of receivers, and others are new roads which have not reached their normal operating footing. Minnesota is the only state where no company reported a deficit in either 1907 or 1902. Connecticut, Kansas, Minnesota, and South Carolina had no company reporting a deficit in 1907, and Georgia, Minnesota, West Virginia, and Wisconsin, none in 1902.

The following statement shows the per cent distribution, by geographic divisions, of the net income of companies reporting net income and of the deficit of companies reporting deficits for 1907 and 1902:

Per cent distribution of net income and net deficit balances of operating companies, by geographic divisions: 1907 and 1902.

DIVISION.	NET INCOME OF COMPANIES REPORTING NET INCOME.		NET DEFICIT OF COMPANIES REPORTING DEFICIT.	
	1907	1902	1907	1902
United States.....	100.0	100.0	100.0	100.0
North Atlantic.....	20.0	44.1	58.3	52.6
South Atlantic.....	10.8	5.7	2.0	6.2
North Central.....	37.8	23.4	20.7	37.9
South Central.....	9.3	5.8	2.3	1.8
Western.....	12.1	11.0	16.6	1.8

The states of the North Atlantic division show a decrease in their proportion of the total net income of

companies reporting net income from 44.1 per cent in 1902 to 30 per cent in 1907, while the other divisions all show gains. On the other hand, the states of the North Atlantic, South Central, and Western divisions show gains in their proportions of the total deficit of companies reporting deficits.

The surplus account (net income less dividends) shows a deficit for 7 states in 1907; but these deficits are inconsiderable, except for California, New Jersey, Pennsylvania, and New York. The last 3 of these states are responsible for a net deficit of nearly one-half million dollars for the North Atlantic division.

Condensed income account of operating companies reporting net income and net deficit, respectively.—The total deficit of companies reporting a deficit has been previously considered in connection with the net income for all companies. A presentation of the full income account for the companies that operated at a loss, however, permits a closer analysis of the statistics, and shows some interesting variations when compared with the totals for companies operating at a profit, especially in the percentages that show the distribution of gross income.

TABLE 91.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES REPORTING NET INCOME AND NET DEFICIT, RESPECTIVELY: 1907 AND 1902.

ACCOUNT.	TOTAL, ALL COMPANIES.		COMPANIES REPORTING NET INCOME. ¹		COMPANIES REPORTING NET DEFICIT.	
	1907.	1902	1907	1902	1907	1902
Number of companies.....	2,930	2,790	672	566	267	233
Gross income.....	\$429,744,254	\$250,504,627	\$334,360,319	\$217,733,909	\$95,377,746	\$32,760,718
Operating earnings.....	418,187,856	247,553,999	324,630,600	210,370,744	93,557,196	31,183,355
Operating expenses.....	251,309,252	142,312,597	190,734,840	121,254,907	60,574,412	21,087,090
Net earnings from operation.....	166,878,606	105,241,402	133,895,820	89,115,837	32,982,736	10,105,265
Miscellaneous income.....	11,556,396	2,950,628	9,735,829	1,383,165	1,820,567	1,267,463
Gross income, less operating expenses.....	178,435,002	108,182,030	143,631,679	90,480,002	34,803,323	11,703,028
Deductions from income, total.....	138,094,719	77,305,033	92,429,608	62,136,318	45,065,018	15,428,735
Taxes.....	19,755,602	13,078,899	15,074,815	11,354,083	3,780,737	1,723,916
Interest.....	63,740,744	38,085,911	49,161,890	30,917,983	14,578,854	7,167,928
On funded debt.....	53,706,525	35,223,284	41,805,263	29,081,206	11,900,042	6,141,088
On other debt.....	9,074,219	2,862,627	7,296,307	1,836,387	2,677,912	1,026,240
Rent of leased lines and terminals.....	48,022,506	25,618,225	21,315,583	19,157,541	20,707,013	6,340,684
Miscellaneous deductions.....	6,576,774	912,018	5,977,380	706,811	508,294	206,207
Net income.....	40,340,286	30,596,977	51,201,981	34,352,684	10,861,695	3,755,707
Dividends.....	26,454,732	15,882,110	26,444,987	15,775,079	9,745	107,031
Surplus.....	13,885,554	14,714,867	24,756,994	18,577,606	10,871,440	3,648,738

¹ Includes 4 companies in 1907 and 1 in 1902 which reported neither profit nor loss.

² Exclusive of 6 companies which failed to furnish this information.

³ Exclusive of 18 companies which failed to furnish this information.

* Net deficit.

* Total deficit.

TABLE 92.—Per cent distribution, by accounts, of gross income of operating companies reporting net income and net deficit, respectively: 1907 and 1902.

ACCOUNT.	PER CENT OF GROSS INCOME.					
	Total, all companies.		Companies reporting net income.		Companies reporting net deficit.	
	1907	1902	1907	1902	1907	1902
Gross income.....	100.0	100.0	100.0	100.0	100.0	100.0
Operating expenses.....	59.5	56.8	57.0	55.7	63.5	64.3
Deductions from income, total.....	32.1	31.0	27.6	28.5	47.9	47.2
Taxes.....	4.6	5.2	4.8	5.2	4.0	5.3
Interest.....	14.8	15.2	14.7	14.2	15.3	21.9
On funded debt.....	12.5	14.1	12.5	13.4	12.5	18.9
On other debt.....	2.3	1.1	2.2	0.8	2.8	3.1
Rent of leased lines and terminals.....	11.2	10.2	6.4	8.8	26.0	19.4
Miscellaneous deductions.....	1.5	0.4	1.8	0.3	0.6	0.0
Dividends.....	6.2	6.3	7.9	7.2	(1)	0.3
Surplus.....	3.2	5.9	7.4	8.5	11.4	11.8

¹ Less than one-tenth of 1 per cent.

² Deficit (see Table 91).

There were 34 more companies in 1907 than in 1902 that reported annual expenses in excess of income. The relative importance of this group of companies had also increased, as it contributed over one-fifth of the gross income for all companies as compared with only a little over one-eighth in 1902. These companies show a higher proportion of gross income in the interest account, and a much higher proportion for oper-

ating expenses and rent of leased lines and terminals, than do the companies reporting a net income. The increases for interest and rentals cause a very high ratio for fixed charges or deductions from income—almost one-half of the gross income as compared with a little over one-fourth for the companies operated at a profit. The statistics of a few large companies go far to make up these large totals for operating expenses and rentals, in which companies reporting net losses differ chiefly from companies reporting net income. Indeed, one may well go further and point to the preponderant influence of 1 railway company in New York. This company reported nearly 40 per cent of the total rentals, more than 30 per cent of the total deficit, and about 18 per cent of the operating expenses reported by the companies of this group. These figures go far to explain not only the large totals for the group as a whole, but also the peculiar financial operations of which the New York company is the highly complicated result. The statistics of this and the other 5 companies mentioned on page 122, combined with the statistics of 1 large company in New Jersey, account for almost 95 per cent of the total rentals paid by the 267 companies operating at a loss, and the aggregate amount of their deficits accounts for nearly 61 per cent of the deficits of the group. Yet they reported

less than 8 per cent of the trackage reported by all companies and slightly more than one-fourth of the total leased track. Of all companies reporting net deficits in 1907 only 24, including 6 of the 7 large companies mentioned, show payments on account of rent of leased lines and terminals, the total of such payments being equivalent to more than one-fourth of the gross income for this group of companies. In 1902, 17 companies showing a net deficit reported payments on account of lease obligations, these payments representing almost one-fifth of the gross

income. More than nine-tenths of the total payments on this account in 1902 were made by 2 companies.

It will be noted that the companies reporting net deficits also paid some dividends—3 companies in 1907 and 5 in 1902—but in some cases the deficit balances for these companies were very small, and in the other cases the dividends were for part of the year only.

A segregation of the statistics for companies reporting deficits, by geographic divisions, shows that the bulk of the deficit is contributed by companies in the North Atlantic states.

TABLE 93.—INCOME, OPERATING EXPENSES, DEDUCTIONS FROM INCOME, AND DEFICIT OF COMPANIES REPORTING NET DEFICIT, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	Number of companies.	Gross income.	Operating expenses.	Deductions from income (taxes and fixed charges).	Net deficit.
United States	1907	267	\$95,377,735	\$60,574,412	\$45,065,018	\$10,861,666
	1902	233	32,750,718	21,047,680	15,458,735	3,756,707
North Atlantic	1907	120	69,736,683	42,064,080	34,004,750	6,331,147
	1902	140	12,107,564	8,709,588	5,378,376	1,975,400
South Atlantic	1907	26	1,122,569	961,428	343,222	222,141
	1902	22	1,092,183	859,977	464,662	232,456
North Central	1907	75	14,358,999	10,055,401	6,555,632	2,252,034
	1902	44	18,790,867	10,820,471	9,395,631	1,425,235
South Central	1907	18	1,657,142	1,300,957	598,836	249,651
	1902	14	465,130	367,944	133,094	55,808
Western	1907	28	8,502,402	6,184,546	4,124,578	1,809,722
	1902	13	204,974	200,810	91,972	65,808

Condensed income account of nonoperating lessor companies.—The number of lessor companies in existence at the close of 1907 was over one and one-half times as great as the number reported for 1902, and their financial transactions have assumed large proportions. While practically the entire amount involved in the income account for these companies was paid as rental by the operating companies, its distribution is a matter of importance. Table 94 gives the income account of such companies for 1907 and 1902.

TABLE 94.—Condensed income account of nonoperating lessor companies: 1907 and 1902.

ACCOUNT.	1907	1902	Per cent of increase.
Number of companies	291	1158	84.2
Gross income	\$47,913,549	\$28,138,899	83.3
Rentals from operating companies	47,500,933	28,116,884	81.0
Miscellaneous income	412,616	22,015	1,772.0
Deductions from income, total	19,455,984	8,779,244	121.7
Taxes	926,450	287,496	222.3
Interest	18,030,522	8,379,559	115.2
On funded debt	17,792,293	8,355,677	111.9
On other debt	328,250	20,882	1,472.0
Miscellaneous deductions (maintenance of organizations, etc.)	500,003	115,298	341.5
Net income	28,457,565	17,359,655	63.9
Dividends	28,030,542	17,157,061	63.4
Surplus	416,723	202,544	105.7

¹ Exclusive of 12 companies which failed to furnish this information.

The deductions from income for the lessor companies were much greater in 1907 than in 1902. The increase is found chiefly in the item of interest on funded debt. The increase in expenses has reduced the proportionate amounts available for dividends.

TABLE 95.—Per cent distribution, by accounts, of gross income of nonoperating lessor companies: 1907 and 1902.

ACCOUNT.	PER CENT OF GROSS INCOME.	
	1907	1902
Gross income	100.0	100.0
Deductions from income, total	40.6	31.6
Taxes	1.9	1.1
Interest	37.0	32.1
On funded debt	36.9	32.0
On other debt	0.7	0.1
Miscellaneous deductions	1.1	0.4
Dividends	59.5	65.6
Surplus	0.9	0.8

The income of the lessor companies from rentals increased 81.0 per cent between 1902 and 1907 (Table 94), while the earnings from operation shown for operating companies (Table 89) increased only 68.9 per cent. Similarly, the net income of the lessor companies increased 63.9 per cent, while the net income of the operating companies increased only 31.8 per cent. In the matter of dividends, however, the percentages of increase were nearly equal, and that of the operating companies was, by contrast, greater than that of the lessor companies, the percentages being, respectively, 66.6 and 63.4.

The nonoperating lessor companies reported for 1907 were located in 21 states and those reported for 1902 in 12 states. The income account for the different state groups of these companies is shown in Table 105.

The lessor companies are largely concentrated in the North Atlantic and North Central states, especially in

Pennsylvania and New York. In Pennsylvania in 1907 there were 140 lessor companies as compared with 122 operating companies; and in 1902, 86 lessor companies and 98 operating companies. A grouping of the statistics by geographic divisions can not be made without disclosing the financial data of some of the individual companies, but the companies are distributed as follows:

Number of lessor companies, by geographic divisions: 1907 and 1902.

DIVISION.	1907	1902
United States.....	291	138
North Atlantic.....	230	142
North Central.....	47	13
South Atlantic.....	10	2
South Central.....	1	
Western.....	3	1

¹ Exclusive of 12 companies which failed to furnish financial information.

The states of the North Atlantic division reported in 1907 nearly 80 per cent of the lessor companies and a little over 80 per cent of the gross income for those companies. The large number of lessor companies in Pennsylvania is due, to a considerable extent, to state laws which are unfavorable to a direct merger or consolidation of railway companies.

Condensed income account of operating and lessor companies combined.—A combination of the income accounts of the operating and lessor companies as given in Table 96 is necessary in order to show the aggregates for the financial transactions of the street and electric railway companies of the United States. In preparing this combined income account it is necessary to eliminate the duplication due to the rentals paid to the lessor companies by the operating companies. The amounts reported by the lessor companies as received do not in all cases agree with the amount of rental reported as paid by the operating companies, a difference due primarily to the different methods of accounting in use by the two classes of companies. It is known that in some cases not all of the rental reported by the lessee company was actually paid, the lessee defaulting on part of its lease obligations; but in order to give a true income and expense account it was proper to tabulate the full amount of the obligations rather than the cash items. In other cases the excess of the rental income reported by the lessor company over the amount reported as paid for rental by the operating company was due to the fact that the latter represented cash paid while the former represented book entries, the difference being adjusted when the books of the company were finally closed during the succeeding year. In other cases the reports of the related operating and lessor companies do not cover the same period of time.

In order that the figures might be comparable, the rentals received by the lessor companies in 1907 were deducted from the income side of the account and a like amount deducted from the fixed charges. Any rental expense remaining, therefore, represented rental

paid other operating companies—steam railroads, etc. The rental paid to the cities of New York and Boston for the subways is treated as a miscellaneous deduction from income, rather than as a rental, as it is not accounted for as income in a report for a lessor company.

TABLE 96.—*Condensed income account of operating and lessor companies combined: 1907 and 1902.*

ACCOUNT.	1907	1902	Per cent of increase.
Number of companies.....	1 1,220	937	28.5
Gross income.....	\$430,156,570	\$250,526,042	71.7
Operating earnings.....	118,187,858	247,553,929	68.9
Operating expenses.....	251,309,252	142,312,507	76.6
Net earnings from operation.....	104,878,606	105,241,402	58.6
Miscellaneous income.....	11,908,712	2,972,643	302.6
Gross income, less operating expenses.....	178,847,318	108,214,045	65.3
Deduction from income, total.....	110,059,767	60,849,231	80.9
Taxes.....	20,682,061	13,366,335	54.7
Interest.....	81,771,236	46,462,470	76.0
On funded debt.....	71,408,788	43,578,961	64.0
On other debt.....	10,362,478	2,883,509	257.3
Miscellaneous deductions.....	9,706,440	1,020,426	645.4
Net income.....	68,787,551	47,364,814	45.2
Dividends.....	54,485,274	33,009,171	64.9
Surplus.....	14,302,277	14,355,643	* 0.2

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 30 companies which failed to furnish this information.

³ Includes rentals paid to other operating companies, steam railroads, etc.

⁴ Decrease.

The amounts reported by the operating companies form by far the largest proportion of the totals given in this table, and largely control the percentages of increase for the majority of the items, which agree very closely with the corresponding percentages for operating companies in Table 89. The principal differences in the percentages are shown for interest, miscellaneous deductions from income, and net income. A combination of the accounts for operating and lessor companies, however, changes the relative distribution of gross income as compared with the corresponding distribution for operating companies.

TABLE 97.—*Per cent distribution, by accounts, of gross income of operating and lessor companies combined: 1907 and 1902.*

	PER CENT OF GROSS INCOME.	
	1907	1902
Gross income.....	100.0	100.0
Operating expenses.....	58.4	56.8
Deductions from income, total.....	25.6	24.3
Taxes.....	4.8	5.3
Interest.....	19.0	18.6
On funded debt.....	16.6	17.4
On other debt.....	2.4	1.2
Miscellaneous deductions.....	1.8	0.4
Dividends.....	12.7	13.2
Surplus.....	3.3	5.7

The percentage of the gross income required to meet operating expenses increased from 1902 to 1907 and is practically the same as that shown for operating companies in Table 90.

The percentage required for fixed charges is considerably less than in the case of operating companies alone, but the increase in this percentage from 1902 to 1907 was slightly greater than for the operating companies. A much larger percentage of the gross income

of operating and lessor companies combined was distributed in the form of dividends than was the case for operating companies alone, and the reduction in this proportion from 1902 to 1907 was somewhat greater for the two classes combined than for the operating companies.

The statistics of the income account for operating and lessor companies combined are given by states in Table 106, but only those states are shown for which the statistics of the lessor companies are given in Table 105. In Table 106 the duplication on account of rentals has not been eliminated, the amount paid by operating companies appearing as an expense and the amount received by the lessor companies as income.

Condensed income account of operating companies, classified according to income from railway operations.—

There is considerable variation in the relative importance of the various items of the income account for companies of different sizes. A study of the statistics shows a relatively higher rate of increase in gross income for the larger companies, with a lowering in the proportion required to meet operating expenses in 1907 as compared with 1902, and an increase in the proportion required for deductions from income.

Table 98 is a comparative income account for operating companies, classified according to income from railway operations, for 1907 and 1902.

TABLE 98.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

ACCOUNT.	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.					
			(A)	(B)	(C)	(D)	(E)	A	B	C	D	E
Number of companies.....	1907	1 939	76	80	80	182	551	8.1	8.3	8.5	19.4	58.7
	1902	1 769	44	28	33	112	562	5.5	3.5	6.6	14.0	70.3
Per cent of increase.....		17.5	72.7	78.6	80.9	62.5	2.0					
Gross income.....	1907	\$429,744,254	\$303,071,003	\$38,644,582	\$30,817,666	\$33,464,518	\$23,726,485	70.5	9.0	7.2	7.8	5.5
	1902	\$250,504,627	\$170,328,500	\$20,564,031	\$19,293,032	\$19,495,576	\$20,823,488	68.0	8.2	7.7	7.8	8.3
Per cent of increase.....		71.6	77.9	87.9	59.7	71.8	13.9					
Operating earnings.....	1907	\$418,187,858	\$297,062,346	\$36,507,437	\$30,210,402	\$31,752,493	\$22,595,180	71.0	8.6	7.2	7.6	5.4
	1902	\$247,553,999	\$167,743,251	\$20,331,216	\$19,212,160	\$19,440,952	\$20,626,420	67.8	8.3	7.5	7.9	8.3
Per cent of increase.....		68.9	77.1	78.3	57.2	63.3	9.4					
Operating expenses.....	1907	\$251,209,252	\$173,358,511	\$22,278,961	\$19,065,080	\$20,341,738	\$16,264,942	69.0	8.9	7.6	8.1	6.5
	1902	\$142,312,597	\$91,842,001	\$11,848,332	\$11,506,292	\$12,506,796	\$14,609,186	64.5	8.3	8.1	8.8	10.3
Per cent of increase.....		76.6	88.8	88.1	65.7	11.3						
Net earnings from operation.....	1907	\$166,978,606	\$123,703,835	\$14,318,456	\$11,145,322	\$11,410,755	\$6,300,238	74.1	8.6	6.7	6.8	3.8
	1902	\$105,241,402	\$75,901,250	\$8,082,884	\$7,705,868	\$6,934,166	\$8,017,234	72.1	8.3	7.3	6.6	5.7
Per cent of increase.....		58.6	63.0	64.9	44.6	64.6						
Miscellaneous income.....	1907	\$11,556,396	\$6,009,657	\$2,047,145	\$907,264	\$1,732,025	\$1,161,305	52.0	17.7	5.3	15.0	10.0
	1902	\$2,950,628	\$2,385,249	\$12,415	\$80,472	\$54,624	\$197,048	57.6	1.1	2.7	1.9	6.7
Per cent of increase.....		291.7	132.4	6,138.4	650.9	489.3						
Gross income, less operating expenses.....	1907	\$178,435,002	\$129,712,492	\$16,365,601	\$11,752,586	\$13,142,780	\$7,041,543	72.7	9.2	6.6	7.4	4.2
	1902	\$108,192,030	\$78,486,409	\$8,716,699	\$7,786,740	\$8,986,796	\$6,214,392	72.5	8.1	7.2	6.5	5.7
Per cent of increase.....		64.9	65.3	87.8	50.9	88.1						
Deductions from income, total.....	1907	\$138,094,716	\$102,004,702	\$12,001,065	\$8,820,046	\$9,067,818	\$6,111,085	73.9	8.8	6.4	6.6	4.4
	1902	\$77,385,053	\$56,819,948	\$5,709,754	\$5,136,642	\$5,016,268	\$4,822,444	73.2	7.6	6.6	6.5	6.2
Per cent of increase.....		78.0	79.5	108.5	71.7	80.8	26.7					
Taxes.....	1907	\$19,755,002	\$15,524,362	\$1,426,864	\$1,052,242	\$1,071,580	\$680,574	78.0	7.2	5.3	5.4	3.4
	1902	\$13,078,899	\$10,326,341	\$879,446	\$619,745	\$650,056	\$600,311	79.0	6.7	4.7	5.0	4.6
Per cent of increase.....		51.0	50.3	62.2	69.8	64.8	12.8					
Interest.....	1907	\$63,740,744	\$35,648,870	\$8,657,223	\$6,845,090	\$7,373,255	\$5,216,327	55.9	13.6	10.7	11.6	8.2
	1902	\$38,085,911	\$21,796,528	\$4,362,352	\$3,867,050	\$4,017,214	\$4,052,738	57.2	11.4	10.2	10.5	10.6
Per cent of increase.....		67.4	63.6	98.9	77.0	83.5	28.7					
On funded debt.....	1907	\$53,766,525	\$30,105,069	\$7,035,156	\$5,678,834	\$6,534,654	\$4,412,212	59.0	13.1	10.6	12.2	8.2
	1902	\$35,223,284	\$20,711,446	\$3,844,873	\$3,478,447	\$3,687,086	\$3,501,432	58.8	10.9	9.9	10.5	9.0
Per cent of increase.....		52.6	45.4	83.0	63.3	77.2	26.0					
On other debt.....	1907	\$9,974,219	\$5,543,301	\$1,622,067	\$1,166,235	\$839,691	\$904,115	55.6	10.3	11.7	9.4	8.1
	1902	\$2,862,627	\$1,085,082	\$507,479	\$388,612	\$330,148	\$351,306	37.9	17.7	13.6	11.5	19.3
Per cent of increase.....		248.4	410.9	219.6	200.1	154.0	45.9					
Rent of leased lines and terminals.....	1907	\$48,022,596	\$48,188,356	\$1,629,743	\$672,784	\$449,708	\$81,995	94.1	3.4	1.4	0.9	0.2
	1902	\$25,518,225	\$24,290,050	\$662,650	\$430,275	\$194,794	\$105,456	93.2	1.9	1.7	0.8	0.4
Per cent of increase.....		88.2	86.0	230.8	56.4	132.1	22.2					
Miscellaneous deductions.....	1907	\$6,575,774	\$5,643,114	\$377,235	\$249,941	\$175,295	\$132,180	85.8	5.7	3.8	2.6	2.0
	1902	\$912,018	\$401,029	\$75,303	\$219,543	\$155,184	\$60,939	44.0	8.3	24.1	17.0	6.7
Per cent of increase.....		621.0	1,307.2	401.0	13.8	11.7	116.9					
Net income.....	1907	\$40,340,286	\$27,707,790	\$4,274,536	\$2,932,540	\$4,074,962	\$1,350,456	68.7	10.6	7.3	10.1	3.3
	1902	\$30,606,977	\$21,665,561	\$2,015,948	\$2,650,008	\$1,072,522	\$1,391,858	70.8	9.5	8.7	6.4	4.5
Per cent of increase.....		31.8	27.9	40.6	10.7	100.6	23.0					
Dividends.....	1907	\$26,454,732	\$20,819,820	\$2,290,890	\$1,030,423	\$1,181,350	\$532,240	78.7	8.7	6.2	4.5	2.0
	1902	\$15,982,110	\$12,174,336	\$1,521,462	\$818,717	\$840,406	\$525,189	70.6	9.6	5.2	5.3	3.3
Per cent of increase.....		66.6	71.0	50.4	90.1	40.6	18.9					
Surplus.....	1907	\$13,885,554	\$6,887,970	\$1,983,646	\$1,302,117	\$2,893,612	\$818,209	49.6	14.3	9.4	20.8	8.9
	1902	\$14,714,967	\$9,492,215	\$1,592,446	\$1,831,381	\$1,132,116	\$866,990	64.5	9.5	12.4	7.7	5.9
Per cent of increase.....		25.6	27.4	42.5	28.9	155.6	25.6					

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

³ Decrease.

The largest amounts of increase, and as a rule the largest percentages of increase, are shown for the largest companies, those belonging to Classes A and B. The gross income and dividends of these companies taken together also formed a larger percentage of the total gross income and dividends, respectively, of all companies in 1907 than in 1902, while the deductions from income for these classes represented a larger part

of the total deductions from income reported at the present census than at the earlier one. The other classes showed, as a rule, decreased percentages of the totals for these items.

Table 99 shows the percentage relation of the accounting items of operating companies to the gross income, the companies being classified according to their income from railway operation.

TABLE 99.—PER CENT DISTRIBUTION, BY ACCOUNTS, OF GROSS INCOME OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

ACCOUNT.	PER CENT OF GROSS INCOME.											
	Total, all companies.		Classification group.									
			\$1,000,000 and over.		\$500,000 but less than \$1,000,000.		\$250,000 but less than \$500,000.		\$100,000 but less than \$250,000.		Less than \$100,000.	
			(A)		(B)		(C)		(D)		(E)	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
Gross income.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Operating expenses.....	58.5	56.8	57.2	53.9	57.7	57.6	61.9	59.6	60.7	64.2	68.6	70.2
Deductions from income, total.....	22.1	31.0	33.7	33.4	31.3	28.2	28.6	26.6	27.1	25.7	25.8	23.2
Taxes.....	4.6	5.2	5.1	6.1	3.7	4.3	3.4	3.2	3.2	3.3	2.9	2.9
Interest.....	14.8	15.2	11.8	12.8	22.4	21.2	22.2	20.0	22.0	20.6	22.0	19.5
On funded debt.....	12.5	14.1	9.9	12.2	18.2	18.7	18.4	18.0	19.5	18.9	18.6	16.8
On other debt.....	2.3	1.1	1.8	0.6	4.2	2.5	3.8	2.0	2.5	1.7	3.4	2.6
Rent of leased lines and terminals.....	11.2	10.2	14.9	14.3	4.2	2.4	2.2	2.2	1.3	1.0	0.3	0.5
Miscellaneous deductions.....	1.5	0.4	1.9	0.2	1.0	0.4	0.8	1.1	0.5	0.8	0.6	0.2
Dividends.....	6.2	6.3	6.9	7.1	5.9	7.4	5.3	4.2	3.5	4.3	2.2	2.5
Surplus.....	3.2	5.9	2.3	5.6	5.1	6.8	4.2	9.5	8.6	5.8	3.4	4.2

The item called "Deductions from income" bears the highest proportion to gross income in the class of largest companies. Further analysis, however, shows that the difference in proportion is more than accounted for by the item of rentals, the larger part of which represents rentals paid to nonoperating lessor companies. Such rentals really represent not an expense of carrying on railway business, but part of the income of railway operation. So far, then, as this item in the accounts of large companies exceeds that in the smaller, it points to increased earnings in large centers of population, rather than to increased cost of carrying on the business. The per cent ratio of the total deductions to the gross income increases without a break from class to class, low (25.8) in Class E to high (33.7) in Class A, and is larger for each class in 1907 than in 1902. Analysis of the deductions for 1907, however, shows that the per cent ratio of interest charges to gross income is practically constant at about 22 in all classes except that of the largest companies, in which the per cent ratio drops sharply to 11.8, and that in every class the ratio is little changed between 1902 and 1907; while, by a sharp contrast, the rental charge ratio increases from class to class, with a surprisingly large increase in Class A, and in only one class, that of the smallest companies, was there a fall in the ratio from 1902 to 1907. Again, the obvious deduction seems to be that increase in earnings of electric-railway operation is very frequently charged to the account of rentals, and that

this financial policy has been one of the most characteristic phenomena of recent railway development.

In the following statement the percentage ratios of "Deductions from income" to gross income are further analyzed, for all classes of companies, to show the ratios for taxes and for interest and rentals combined:

Per cent ratios of itemized deductions from income to gross income of operating companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	PER CENT OF GROSS INCOME.					
	ALL DEDUCTIONS FROM INCOME.		Taxes.		Interest and rentals.	
	1907	1902	1907	1902	1907	1902
Total, all companies.....	32.1	31.0	4.6	5.2	26.0	25.4
Class A.....	33.7	33.4	5.1	6.1	26.7	27.1
Class B.....	31.3	28.2	3.7	4.3	26.6	23.6
Class C.....	28.6	26.6	3.4	3.2	24.4	22.3
Class D.....	27.1	25.7	3.2	3.3	23.4	21.6
Class E.....	25.8	23.2	2.9	2.9	22.3	20.0

Interest and rentals are here combined, because for some comparisons it is well to treat interest as a fixed charge on account of capital invested in owned lines and rentals as a fixed charge on account of capital invested in leased lines, the two therefore representing capital charges as distinguished from capital dividends.

Regarding the matter from this point of view, it appears that the ratio of this combined capital charge to gross income increases regularly from Class E to

Class A, and that it is greater for every class in 1907 than in 1902, except in Class A, where the presence of an unusual amount of "Miscellaneous deductions" results in a corresponding decrease in both the ratios shown in the statement.

Condensed income account of operating companies with and without commercial lighting, and of part-time companies.—The generation and sale of electricity for pur-

poses other than the operation of the railway necessarily has some effect upon the proportion that the different items of income and expense represent of the respective totals. The fact that a company was in operation only a part of the year also affects its financial operations as compared with those of a company operating the entire period of twelve months.

TABLE 100.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

ACCOUNT.	CLASSIFICATION GROUP.											
	TOTAL, ALL COMPANIES.		Without commercial lighting. ¹		With commercial lighting.		Part-time.		Per cent of increase.			
	1907	1902	1907	1902	1907	1902	1907	1902	Total.	With-out commercial lighting.	With commercial lighting.	Part-time.
Number of companies.....	³ 939	¹ 799	⁷ 09	⁶ 30	⁴ 175	¹ 12	⁵⁵	⁵⁷	17.5	12.5	56.3	³ 3.5
Gross income.....	\$429,744,254	\$250,504,627	\$356,704,380	\$225,611,197	\$71,766,709	\$22,418,065	\$1,271,159	\$2,475,365	71.6	58.1	220.1	⁶ 68.6
Operating earnings.....	418,187,898	247,553,999	347,035,013	222,960,978	68,986,416	22,088,656	1,266,429	2,475,365	68.9	56.0	212.3	⁴ 69.6
Operating expenses.....	251,360,252	142,950,567	208,847,845	128,638,492	41,596,582	12,854,941	894,825	1,609,174	76.6	63.1	223.9	³ 37.5
Net earnings from operation.....	166,827,646	104,603,432	138,187,168	94,322,486	27,419,834	9,233,715	351,604	1,036,191	58.6	46.5	196.3	⁶ 66.1
Miscellaneous income.....	11,556,595	2,950,029	8,749,373	2,621,219	2,782,293	329,409	24,730		291.7	233.8	744.6	
Gross income, less operating ex-penses.....	178,455,002	108,192,030	147,836,541	97,572,715	30,202,127	9,563,124	376,334	1,006,191	64.9	51.5	215.2	⁶ 63.7
Deductions from income, total.....	139,094,716	77,585,033	117,688,115	71,027,194	19,944,704	6,007,847	461,807	569,012	78.0	65.7	232.0	⁵ 17.5
Taxes.....	19,755,602	13,078,899	16,755,648	12,294,585	2,976,684	743,575	23,270	50,769	51.0	30.3	305.8	⁵ 54.1
Interest.....	63,740,744	38,085,911	50,544,496	32,728,041	12,782,391	4,669,800	423,887	508,070	67.4	54.4	161.6	¹ 10.6
On funded debt.....	53,796,525	35,223,294	42,212,111	30,168,164	11,296,199	4,619,145	289,215	455,075	52.6	39.9	141.9	⁵ 33.9
On other debt.....	9,974,219	2,862,627	8,322,385	2,559,877	1,516,162	230,655	135,672	72,995	248.4	225.1	537.3	⁵ 88.2
Rent of leased lines and ter-minals.....	48,022,596	25,518,225	45,328,842	25,470,229	2,693,754	47,413		583	88.2	78.0	5,561.5	⁵ 100.0
Miscellaneous deductions.....	6,575,774	912,018	5,008,129	334,310	1,491,905	377,059	14,740	620	621.0	848.7	295.7	² 2,277.4
Net income.....	40,340,296	30,596,977	30,168,426	26,545,521	10,257,423	3,575,277	85,581	476,179	31.9	13.6	189.9	
Dividends.....	26,454,732	15,892,110	22,476,056	15,022,519	3,971,059	813,091	7,617	46,500	60.6	49.6	398.4	⁶ 83.0
Surplus.....	13,885,564	14,714,867	7,692,370	11,523,002	6,286,364	2,762,186	7,963,180	429,679	5.6	33.2	127.6	

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of 6 companies which failed to furnish this information.

³ Exclusive of 18 companies which failed to furnish this information.

⁴ Exclusive of 2 part-time companies.

⁵ Decrease.

⁶ Net deficit.

⁷ Total deficit.

The table does not throw all the income from sale of current to the group "With commercial lighting," as there were in all 330 companies in 1907 which reported income from the sale of current, while only 175 are included in the table. The other 155 companies reported a total of \$3,562,495 income from the sale of current. As this amount was not so great as to produce a perceptible effect on the operating railway accounts, and as the sales of current by the several companies were inconsiderable or in the nature of wholesaling of current, it was deemed best to include these companies as of the class "Without commercial lighting."

A classification of street and electric railway companies upon the basis employed in the table does not result in as many marked differences in the proportions of gross income represented by operating expenses and deductions from income as might be expected, although the income from sale of electric current was considerably more important in 1907 than at the former census, forming 4.8 and 3.1 per cent, re-

spectively, of the total operating earnings at the two census periods. The companies "With commercial lighting" contributed about 17 per cent of the gross income for all companies in 1907, or nearly twice as much proportionately as in 1902, when the percentage was slightly less than 9. The percentages of increase for this class of companies range, with one exception, much higher for all items shown in Table 100 than they do for companies "Without commercial lighting."

While each group shows an increase in 1907 as compared with 1902 in the percentage of gross income required to meet operating expenses, the increase was relatively slight for companies "With commercial lighting." It will be noted that the proportion of the gross income required for rent of leased lines was much less for companies with lighting plants than for companies without. For the most part the railways which are engaged in commercial light and power business are located in the smaller cities and towns where there is very little leasing of companies.

TABLE 101.—PER CENT DISTRIBUTION, BY ACCOUNTS, OF GROSS INCOME OF OPERATING COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

ACCOUNT.	PER CENT OF GROSS INCOME.							
	Total, all companies.		Classification group.					
			Without com- mercial lighting.		With commer- cial lighting.		Part-time.	
	1907	1902	1907	1902	1907	1902	1907	1902
Gross income.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Operating expenses.....	58.5	56.8	58.5	56.8	57.9	57.3	70.4	58.1
Deductions from income, total.....	32.1	31.0	33.0	31.5	27.5	20.8	38.3	22.6
Taxes.....	4.6	5.2	4.7	5.4	4.1	3.3	1.8	2.1
Interest.....	14.8	15.2	14.2	14.5	17.8	21.6	33.3	20.5
On funded debt.....	12.5	14.1	11.8	13.4	15.7	20.6	22.7	17.6
On other debt.....	2.3	1.1	2.3	1.1	2.1	1.0	10.7	2.9
Rent of leased lines and terminals.....	11.2	10.2	12.7	11.3	3.8	0.2	.....	(1)
Miscellaneous deductions.....	1.5	0.4	1.4	0.2	2.1	1.7	1.2	(1)
Dividends.....	6.2	6.3	6.3	6.7	3.5	3.6	0.6	1.9
Surplus.....	3.2	5.9	2.2	5.1	8.8	12.3	7.3	17.4

1 Less than one-tenth of 1 per cent.

2 Deficit (see Table 100).

The companies without commercial lighting plants reported a proportionately larger amount as paid out from their net income in the form of dividends, at both censuses, than did the companies engaged in both railway and lighting. It is obvious, however, that the companies with commercial lighting could have distributed as great a proportion of the gross income in dividends as did the other class—and even a greater proportion—had they pursued the same policy as to surplus, which shows as 8.8 per cent of their gross income, as compared with the 2.2 per cent for companies without commercial lighting, since the companies with commercial lighting show a far greater ratio of net income to gross income—14.3 per cent—than that of the companies without commercial lighting—8.5 per cent.

The relative importance of "Part-time" companies was less in 1907 than in 1902, the gross income of such companies falling from 1 per cent of the total for all companies in 1902 to three-tenths of 1 per cent in 1907. For reasons elsewhere explained, comparison of the statistics of the two years gives no conclusions

of scientific value. The figures are given only to show the less importance of such companies in 1907, and to permit more accurate comparisons of the statistics for railways operating throughout the year.

Condensed income account of companies, classified according to kind of system and character of service.—It is impracticable for the census to make all possible classifications that the statistical purpose of comparability might suggest; but as between surface railways on the one hand and elevated and subway railways on the other hand, the operating conditions are so different as to give unusual value and importance to a separate analysis of their statistics. The same may be said of the classification in which 50 selected inter-urban lines and 100 selected small urban roads are set off from all other railways. Both these groupings are made in the condensed income account shown in Table 102. It was not believed, however, that comparison of the statistics for 1907 with those for 1902 would have sufficient value to justify the difficult retabulation of the reports for 1902.

TABLE 102.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

ACCOUNT.	CLASSIFICATION GROUP.				
	Total, all companies.	Kind of system.		Character of service.	
		Electric elevated and subway railways. ¹	Electric surface railways. ¹	Selected inter-urban lines.	Selected small urban roads. ¹
Number of companies.....	939	6	933	50	100
Gross income.....	\$429,744,254	\$34,257,079	\$395,486,275	\$30,131,545	\$1,411,338
Operating earnings.....	418,187,854	33,974,054	384,313,804	29,155,121	1,407,019
Operating expenses.....	251,309,353	15,129,025	236,180,227	16,900,292	1,135,442
Net earnings from operation.....	166,878,501	18,745,029	148,133,577	12,254,829	271,577
Miscellaneous income.....	11,356,300	383,925	11,172,474	976,424	4,319
Gross income, less operating expenses.....	178,435,002	19,128,954	159,306,048	13,231,253	275,896
Deductions from income, total.....	138,094,716	13,479,216	124,615,500	10,767,350	350,092
Taxes.....	19,765,002	1,896,249	17,769,353	992,177	47,086
Interest.....	13,740,744	3,700,002	10,040,142	6,500,600	300,988
On funded debt.....	53,700,325	3,425,422	50,341,103	8,127,024	253,378
On other debt.....	9,974,219	275,180	9,699,039	63,075	47,610
Rent of leased lines and terminals.....	48,022,500	5,900,120	42,056,476	3,054,413	.....
Miscellaneous deductions.....	6,575,774	1,406,245	4,769,529	129,770	1,418
Net income.....	40,340,286	5,649,734	34,670,548	2,463,904	*74,106
Dividends.....	26,454,732	4,008,880	22,445,852	1,256,952	31,403
Surplus.....	13,885,554	1,640,858	12,224,696	1,206,952	*105,500

1 Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

2 Includes the statistics for the few railways not operated by electricity.

3 Exclusive of 6 companies which failed to furnish this information.

* Deficit.

* Total deficit.

The electric elevated and subway companies and the selected small urban roads are operated almost exclusively in cities. The selected interurban roads, as has been explained, are roads whose operators report the greater part of their trackage as rural, and whose business is chiefly interurban. The other two groups—and they include the very great majority of all companies—do not represent conditions exclusively urban, interurban, or rural. The totals given in this table should be considered in connection with the distribution of the gross income shown in Table 103.

TABLE 103.—*Per cent distribution, by accounts, of gross income of operating companies, classified according to kind of system and character of service: 1907.*

ACCOUNT.	PER CENT OF GROSS INCOME.					
	Total, all compa- nies.	Classification group.				
		Kind of system.		Character of service.		
		Elec- tric ele- vated and sub- way rail- ways.	Elec- tric sur- face rail- ways.	Selected inter- urban lines.	Selected small urban roads.	All other rail- ways.
Gross income.....	100.0	100.0	100.0	100.0	100.0	100.0
Operating expenses.....	58.5	44.2	59.7	56.1	50.5	58.6
Deductions from income, total.	32.1	39.3	31.5	35.7	24.8	31.9
Taxes.....	4.0	5.8	4.5	3.3	3.4	4.7
Interest.....	14.8	10.8	15.2	21.9	21.3	14.3
On funded debt.....	12.5	10.0	12.7	20.3	18.0	11.9
On other debt.....	2.3	0.8	2.5	1.5	3.4	2.4
Rent of leased lines and terminals.....	11.2	17.4	10.6	10.1	.....	11.3
Miscellaneous deductions.....	1.5	5.3	1.2	0.4	0.1	1.6
Dividends.....	6.2	11.7	5.7	4.2	2.2	6.3
Surplus.....	3.2	4.8	3.1	4.0	7.5	3.2

Deficit (see Table 102).

The small group of electric elevated and subway railways shows a low per cent ratio of operating expenses to gross income (44.2), and a relatively high per cent ratio for deduction from income (39.3); while, as representing the other extreme, the group of small urban roads shows a high ratio for operating expenses (80.5) and a low one for deductions from income (24.8).

The subway rentals paid the cities of New York and Boston are included in the item of "Miscellaneous deductions," and constitute a considerable proportion of the amounts reported for this item for both groups under the classification by "Kind of system," and for "All other railways" under the classification by "Character of service." The Boston Elevated Railway, operating the Boston Subway, is included, as has been stated, in the group of "Electric surface railways." From one point of view, the percentages to be credited to rent of leased lines and terminals are larger than the table indicates, since in many aspects subway rentals are akin to rentals of leased lines.

The small per cent ratio of interest on funded debt to gross income shown for the elevated and subway roads (10) is more than offset by the rentals, which formed a much larger proportion of the gross income than is shown for the other groups. This group also shows the largest percentage paid in dividends and the largest proportion set aside as surplus.

In very many respects the selected interurban and the small urban roads represent the two extremes of service conditions. The equipment, methods of operation, length of ride, etc., are radically different for the two groups, and these differences are reflected in the percentages given in Table 103.

STREET AND ELECTRIC RAILWAYS.

TABLE 104.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES.

	STATE OR TERRITORY.	Census.	Number of companies.	Operating earnings.	OPERATING EXPENSES.	
					Amount.	Per cent ratio of operating earnings.
1	United States.....	1907	1909	\$418,187,858	\$251,309,252	60.1
2		1902	1719	247,333,990	142,312,307	57.5
3	North Atlantic division.....	1907	365	193,826,057	116,309,563	60.0
4		1902	350	131,034,080	76,504,089	58.4
5	Maine.....	1907	17	2,250,649	1,480,544	65.5
6		1902	19	1,542,508	1,127,690	73.1
7	New Hampshire.....	1907	16	1,088,957	805,892	82.3
8		1902	7	694,131	478,849	79.3
9	Vermont.....	1907	10	411,389	313,845	71.1
10		1902	9	249,228	201,179	80.7
11	Massachusetts.....	1907	62	30,925,503	21,179,642	68.5
12		1902	74	23,617,570	16,403,667	69.5
13	Rhode Island.....	1907	5	4,432,090	2,744,166	61.9
14		1902	7	2,964,200	1,862,477	63.8
15	Connecticut.....	1907	8	7,271,549	4,857,763	66.8
16		1902	21	4,284,089	2,773,698	64.7
17	New York.....	1907	101	69,856,329	40,928,855	60.7
18		1902	96	50,315,006	33,677,724	66.8
19	New Jersey.....	1907	24	12,895,532	7,906,138	61.3
20		1902	25	8,137,477	4,324,112	53.1
21	Pennsylvania.....	1907	122	44,654,130	26,003,748	58.2
22		1902	98	20,319,211	13,624,813	51.5
23	South Atlantic division.....	1907	100	28,531,988	16,280,864	57.1
24		1902	75	14,989,177	8,186,047	54.6
25	Delaware.....	1907	4	756,168	516,231	68.3
26		1902	3	500,412	360,590	72.1
27	Maryland and District of Columbia.....	1907	19	11,617,214	5,943,963	51.2
28		1902	18	7,993,313	3,870,538	48.0
29	Virginia.....	1907	22	5,152,173	3,261,570	63.3
30		1902	16	1,633,479	1,009,356	63.0
31	West Virginia.....	1907	13	2,562,800	1,540,395	60.1
32		1902	8	1,102,171	632,862	59.2
33	North Carolina.....	1907	11	1,186,400	743,357	62.7
34		1902	7	437,259	322,344	73.7
35	South Carolina.....	1907	7	1,273,617	762,853	60.9
36		1902	7	597,577	398,692	66.7
37	Georgia.....	1907	12	4,616,337	2,555,713	55.4
38		1902	10	2,375,224	1,232,320	51.9
39	Florida.....	1907	10	1,367,210	950,860	70.0
40		1902	6	629,743	339,375	54.1
41	North Central division.....	1907	293	132,783,152	78,374,932	59.0
42		1902	235	73,285,244	41,271,462	56.3
43	Ohio.....	1907	73	30,362,675	18,479,609	60.8
44		1902	62	16,587,063	9,132,480	55.1
45	Indiana.....	1907	33	11,224,545	6,308,152	56.2
46		1902	26	3,813,070	2,219,791	58.2
47	Illinois.....	1907	70	40,448,084	25,097,996	63.3
48		1902	48	24,164,905	14,103,211	58.4
49	Michigan.....	1907	24	10,968,568	6,549,919	60.8
50		1902	24	6,494,091	3,655,328	56.3
51	Wisconsin.....	1907	20	6,135,064	3,235,068	52.7
52		1902	17	3,902,059	1,995,024	51.1
53	Minnesota.....	1907	5	7,048,370	3,524,346	50.0
54		1902	5	3,727,648	1,719,687	46.1
55	Iowa.....	1907	24	4,295,030	2,426,930	56.8
56		1902	22	2,384,421	1,460,993	61.3
57	Missouri.....	1907	14	14,000,248	9,680,226	69.1
58		1902	10	10,001,220	6,071,971	60.8
59	North and South Dakota.....	1907	5	112,079	72,412	64.6
60	Nebraska.....	1907	8	2,737,756	1,325,038	48.4
61		1902	4	1,148,994	656,729	57.1
62	Kansas.....	1907	17	1,439,813	775,207	53.8
63		1902	11	370,451	237,248	64.4

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

Net earnings from operation.	Miscellaneous income.	Gross income, less operating expenses.	Deductions from income (taxes and fixed charges).	Net income of companies reporting net income.	Deficit of companies reporting deficit.	Net income for state.	Dividends.	Surplus.	
\$168,878,606	\$11,556,396	\$178,435,002	\$134,094,716	\$31,201,981	\$10,861,085	\$40,340,280	\$25,454,782	\$13,885,554	1
105,241,402	2,950,028	108,192,030	77,305,053	34,332,084	3,755,707	30,580,977	15,882,110	14,714,867	2
77,516,494	3,400,886	80,917,380	71,007,673	15,340,854	6,231,147	9,009,707	9,473,396	*463,689	3
54,529,991	1,790,716	56,290,707	43,101,611	15,164,496	1,975,400	13,189,096	6,919,937	6,360,250	4
779,105	33,548	812,653	409,277	251,964	8,588	343,376	186,094	186,082	5
414,848	29,054	443,902	337,050	148,951	42,109	106,832	67,829	39,023	6
193,095	3,225	196,320	112,510	111,407	27,097	83,810	74,170	9,640	7
120,282		123,282	83,796	45,225	3,729	41,496	6,250	33,246	8
127,544	12,893	140,407	117,001	28,323	15,617	22,806	18,000	4,806	9
48,049		48,049	45,099	20,704	17,744	2,960	8,750	*6,790	10
9,745,851	148,450	9,894,320	7,061,339	2,947,539	114,558	2,632,941	2,421,036	411,925	11
7,213,903	15,840	7,229,743	5,108,619	2,301,808	180,384	2,121,124	1,910,060	211,064	12
1,688,833	20,038	1,714,871	1,538,793	196,472	20,304	176,078		176,078	13
1,071,783		1,071,783	351,767	912,477	192,461	720,016	700,000	*20,984	14
2,413,806	107,427	2,521,233	2,154,647	366,586		366,586	57,656	208,930	15
1,510,481	71,666	1,582,167	1,128,319	461,604	7,756	463,848	231,082	232,768	16
28,927,474	1,826,344	30,753,818	25,354,087	9,450,024	4,047,293	5,402,731	5,565,664	*182,933	17
25,037,882	1,506,174	27,204,056	19,552,955	8,391,716	740,615	7,651,101	3,123,656	4,517,446	18
4,900,304	187,126	5,177,520	5,755,396	107,301	745,077	*577,876	172,928	*750,604	19
3,813,365	30,446	3,843,811	3,625,740	345,232	158,161	227,071	78,430	148,651	20
14,650,382	1,052,856	15,703,238	10,344,023	1,711,338	1,352,123	359,215	977,228	*618,013	21
14,094,398	38,516	14,732,914	12,868,286	2,497,009	632,441	1,864,628	621,811	1,242,817	22
12,251,124	1,072,908	13,324,122	7,998,784	5,547,479	222,141	5,325,338	2,130,337	3,195,001	23
8,803,130	175,058	8,978,188	8,260,379	1,950,295	232,456	1,717,809	740,945	970,864	24
239,915	2,015	241,930	203,623	56,541	18,234	28,307	32,000	*13,693	25
139,822	147	139,969	77,439	79,391	17,061	62,330	9,331	63,199	26
5,673,351	515,379	6,188,730	3,708,300	2,540,328	68,898	2,480,430	1,150,000	1,330,430	27
4,022,775		4,022,775	3,237,193	922,835	128,253	785,582	606,627	178,756	28
1,800,003	240,242	2,139,645	1,267,981	900,308	57,394	851,914	68,750	783,164	29
544,122	113,644	657,600	547,730	151,890	41,963	109,936	33,396	76,541	30
1,022,405	25,925	1,048,330	743,300	333,806	26,706	305,130	26,400	278,730	31
449,309		449,309	255,842	183,467		183,467	22,000	161,467	32
443,112	100,006	543,120	253,806	210,889	12,575	188,314		188,314	33
114,915	5,208	120,123	96,993	47,071	25,941	21,130		21,130	34
510,764	62,840	573,604	390,713	182,891		182,891		182,891	35
198,915	56,159	255,074	203,196	60,318	8,440	51,878	730	51,158	36
2,000,624	104,238	2,164,862	1,124,069	1,045,033	5,140	1,039,893	643,787	396,106	37
1,142,904		1,142,904	755,307	397,607		397,607	33,952	353,745	38
410,350	4,331	414,681	186,222	256,583	31,134	228,459	198,400	30,059	39
190,358		190,358	74,779	116,585	798	115,369	40,730	74,809	40
54,408,220	2,000,419	56,408,639	39,903,747	19,356,936	2,252,034	17,104,892	9,848,424	7,556,468	41
32,013,786	987,042	33,001,428	22,068,954	11,457,709	1,425,235	10,032,474	6,438,042	3,594,432	42
11,913,090	862,226	12,795,292	9,215,583	4,115,591	535,832	3,579,709	2,315,988	1,264,021	43
7,455,213	12,158	7,467,371	4,137,860	3,467,102	137,597	3,329,505	1,644,508	1,684,907	44
4,916,393	272,223	5,188,616	4,477,535	888,457	177,476	711,081	148,408	562,583	45
1,593,285		1,593,285	1,201,297	438,115	46,127	391,988	33,974	358,014	46
11,850,088	503,568	12,353,656	10,608,510	6,024,972	1,339,826	4,685,146	2,337,129	2,348,017	47
10,061,754	864,292	10,926,046	8,453,191	3,190,378	723,523	2,472,855	2,310,710	162,145	48
4,398,669	83,386	4,482,055	2,807,083	1,753,866	138,994	1,614,972	697,530	927,442	49
2,839,363	20,482	2,859,845	1,788,797	1,145,719	68,671	1,077,048	612,000	465,048	50
2,999,996	527,753	3,427,749	2,180,929	1,292,027	45,307	1,246,820	1,098,187	178,633	51
1,907,035	21,825	1,928,860	1,081,160	847,700		847,700	300,663	547,137	52
3,524,024	8,138	3,532,162	2,128,156	1,404,006		1,404,006	1,215,000	189,006	53
2,007,961		2,007,961	1,027,121	980,840		980,840	870,400	110,440	54
1,468,971	95,210	1,564,181	894,434	676,917	7,170	669,747	218,000	450,847	55
923,428	19,413	942,841	429,373	529,046	15,617	513,498	117,660	395,838	56
8,320,022	82,484	8,402,506	6,150,063	2,257,403	4,980	2,252,413	1,019,000	1,233,413	57
4,619,249	43,472	4,662,721	4,035,601	459,982	432,662	27,339	313,337	*280,017	58
30,687	50	30,717	19,993	19,872	148	19,724		19,724	59
1,412,718	6,348	1,419,066	895,673	526,094	2,601	523,493	456,032	65,461	60
493,265		493,265	120,297	343,949	981	342,968	230,800	112,168	61
664,006	39,003	703,639	305,960	397,751		397,751	80,400	217,351	62
113,233		113,233	64,451	48,839	57	48,782	4,000	44,782	63

* Deficit.

* No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 104.—CONDENSED INCOME ACCOUNT OF OPERATING COMPANIES.

STATE OR TERRITORY.	Census.	Number of companies.	Operating earnings.	OPERATING EXPENSES.	
				Amount.	Per cent ratio of operating earnings.
South Central division....	1907	90	\$21,548,631	\$14,887,271	69.6
	1902	69	11,385,391	6,678,876	58.7
Kentucky....	1907	13	4,775,098	2,825,497	59.2
	1902	12	2,432,001	1,590,270	65.2
Tennessee....	1907	9	4,443,601	2,434,252	54.8
	1902	8	1,866,835	1,079,237	57.8
Alabama....	1907	10	3,365,979	2,276,100	67.6
	1902	9	1,497,351	878,291	58.7
Mississippi....	1907	4	617,769	534,542	86.4
	1902	5	238,654	192,056	74.3
Louisiana....	1907	11	4,508,104	2,682,481	59.5
	1902	8	2,910,244	1,738,989	60.4
Arkansas....	1907	8	1,215,054	683,262	56.2
	1902	7	371,560	216,433	58.2
Oklahoma ¹	1907	8	568,196	357,917	63.4
Texas....	1907	23	4,856,640	3,083,230	63.7
	1902	17	1,547,846	993,000	64.2
Western division....	1907	91	38,498,030	25,456,622	66.1
	1902	67	16,800,103	9,672,123	57.4
Montana....	1907	5	760,201	551,933	72.6
	1902	5	492,023	365,073	74.2
Colorado....	1907	11	4,130,992	2,699,421	65.8
	1902	7	2,227,286	1,300,006	58.4
Washington....	1907	14	7,898,743	5,140,501	65.1
	1902	8	2,642,006	1,576,018	62.0
Oregon....	1907	8	2,731,674	1,638,271	60.0
	1902	6	1,042,965	653,912	62.7
California....	1907	41	29,691,713	14,578,367	50.5
	1902	35	9,967,288	5,402,245	54.2
All other Western states and territories ² ...	1907	12	2,264,737	1,448,129	63.4
	1902	6	587,705	374,299	63.7
Hawaii and Porto Rico ⁴	1907	4	745,338	418,432	56.1
	1902	5	515,913	330,350	64.0

¹ Deficit.² No company reported in 1902.

BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

Net earnings from operation.	Miscellaneous income.	Gross income, less operating expenses.	Deductions from income (taxes and fixed charges).	Net income of companies reporting net income.	Deficit of companies reporting deficit.	Net income for state.	Dividends.	Surplus.	
\$9,661,300 4,706,515	\$1,804,383 809	\$11,465,743 4,707,414	\$6,959,418 2,754,169	\$4,755,976 2,009,053	\$249,651 55,408	\$4,506,325 1,953,245	\$2,086,578 836,798	\$1,819,747 1,116,447	64 66
1,950,601 1,372,631	15,935 809	1,966,436 1,373,530	1,109,243 777,433	878,050 602,551	20,847 6,454	857,203 596,097	625,938 371,000	231,265 226,097	66 67
2,009,639 787,598	37,100	2,046,739 787,598	1,418,575 595,356	628,045 222,214	881 29,972	628,164 192,242	284,676	343,488 192,242	68 69
1,080,879 619,060	101,697	1,181,376 619,060	988,048 384,762	332,752 244,243	129,424 9,945	203,328 234,298	250,908 81,000	147,540 153,288	70 71
283,227 66,598	88,530	371,747 66,598	247,833 38,084	157,574 28,704	33,660 860	123,914 27,914		123,914 27,914	72 73
1,825,623 1,151,255	1,486,871	3,312,494 1,151,255	1,890,680 660,380	1,426,252 463,313	4,438 2,438	1,421,814 460,875	994,698 302,198	427,116 98,677	74 75
532,692 135,127	59,442	592,134 155,127	263,537 68,071	328,411 87,633	9,814 577	328,597 87,656	105,228	222,369 87,056	76 77
206,279	13,761	220,040	109,330	111,653	843	110,810	120,000	139,190	78
1,703,420 554,246	1,357	1,704,777 554,246	932,282 199,483	882,239 360,335	49,744 5,572	832,495 354,763	275,170 22,000	557,325 332,163	79 80
13,041,408 7,187,980	2,777,710 26,313	15,819,118 7,214,293	11,425,094 3,509,940	6,200,746 3,771,161	1,806,722 66,808	4,394,024 3,704,353	2,606,967 1,040,488	1,787,027 2,663,865	81 82
208,208 126,950	142,420	350,698 126,950	129,851 74,033	223,823 66,190	4,026 13,879	229,837 52,317	35,520	194,307 52,317	83 84
2,031,541 926,080	352,292 680	2,383,833 927,160	1,273,024 536,005	1,136,890 432,428	29,057 41,273	1,110,809 391,156	307,124 180,000	808,685 211,156	85 86
2,758,242 906,888	503,817	3,262,059 906,888	1,788,314 463,101	1,503,976 504,784	30,231 997	1,473,745 503,787	556,543 150,028	917,202 353,759	87 88
1,063,403 388,983	896,316	1,960,719 388,983	992,748 146,519	1,002,846 243,721	5,875 1,257	996,971 242,464	535,000 54,048	461,971 188,416	89 90
6,112,246 4,605,043	854,084 550	6,967,430 4,605,593	6,732,705 2,112,059	1,905,455 2,461,414	1,730,730 8,790	234,725 2,432,634	1,172,800 633,412	1,938,075 1,799,222	91 92
836,608 213,436	29,781 25,263	865,389 238,719	517,432 176,723	357,740 62,618	9,603 622	347,937 61,996		347,937 68,996	93 94
226,900 185,563	8,421	335,327 185,563	184,302 106,016	151,025 99,943	20,395	151,025 79,548	45,000 19,500	106,025 60,048	95 96

* Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.

* Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

STREET AND ELECTRIC RAILWAYS.

TABLE 105.—INCOME ACCOUNT OF NONOPERATING

STATE.	Census.	Number of companies.	INCOME.		
			Total.	Rentals from operating companies.	Miscellaneous.
United States.....	1907	291	\$47,913,249	\$47,500,933	\$412,316
	1902	138	26,138,899	25,116,584	22,015
Connecticut.....	1907	3	1,097,859	1,010,367	77,491
	1902	4	113,546	113,546	
Delaware ¹	1907	3	43,200	43,200	
Illinois.....	1907	16	2,628,688	2,628,688	
	1902	8	3,758,762	3,758,762	
Indiana ¹	1907	10	1,945,781	1,945,781	
Massachusetts.....	1907	19	2,128,500	2,118,919	8,581
	1902	18	1,986,774	1,986,774	
New Jersey.....	1907	17	2,166,820	2,166,765	85
	1902	4	1,566,217	1,566,217	
New York.....	1907	46	14,892,040	18,870,857	11,183
	1902	23	5,703,008	5,497,399	6,309
Ohio.....	1907	17	3,179,699	3,179,599	
	1902	4	1,039,814	1,069,814	
Pennsylvania.....	1907	140	13,937,422	13,631,311	306,111
	1902	86	9,608,918	9,592,112	15,806
Rhode Island ¹	1907	3	1,054,080	1,054,080	
West Virginia ¹	1907	3	10,321	4,795	5,526
All other states ¹	1907	14	850,110	846,771	3,339
	1902	11	2,321,290	2,321,290	

¹ Exclusive of 12 companies which failed to furnish this information.² Deficit.³ No lessor companies reported in 1902.

TABLE 106.—CONDENSED INCOME ACCOUNT OF OPERATING

STATE.	Census.	NUMBER OF COMPANIES.			Operating earnings.	Operating expenses.	Net earnings from operation.	Miscellaneous income.
		Total.	Operating.	Lessor.				
United States.....	1907	11,230	1039	291	\$418,187,858	\$251,309,252	\$166,878,606	\$11,968,712
	1902	8,937	1,799	158	267,553,999	142,312,597	105,241,402	2,972,643
Total for states having operating and lessor companies.....	1907	1,971	1,680	291	372,350,677	302,432,008	129,917,769	8,782,441
	1902	1,641	1,483	158	196,390,383	107,331,624	79,059,359	2,703,133
Connecticut.....	1907	11	8	3	7,371,569	4,857,763	2,413,806	184,916
	1902	25	21	4	4,284,080	2,773,008	1,510,481	71,686
Delaware ¹	1907	7	4	3	750,168	516,253	239,915	2,015
Illinois.....	1907	86	70	16	40,448,084	25,597,996	14,850,088	503,568
	1902	56	49	8	24,164,965	14,103,211	10,061,754	864,292
Indiana ¹	1907	63	33	10	11,224,545	6,308,152	4,916,393	272,223
Massachusetts.....	1907	81	62	19	30,925,503	21,179,042	9,745,861	157,040
	1902	92	74	18	23,617,570	16,603,667	7,213,903	15,840
New Jersey.....	1907	41	24	17	12,895,532	7,905,128	4,990,394	187,211
	1902	29	25	4	8,137,477	4,324,112	3,813,365	36,446
New York.....	1907	147	101	46	80,856,329	50,028,855	38,927,474	1,840,327
	1902	119	96	23	59,315,006	33,677,724	25,637,892	1,572,383
Ohio.....	1907	80	73	17	30,392,675	18,479,609	11,913,066	682,226
	1902	66	62	4	16,387,683	9,132,490	7,455,213	12,158
Pennsylvania.....	1907	262	122	140	44,654,130	26,003,748	18,650,382	1,358,967
	1902	194	98	86	30,319,211	15,024,813	14,694,398	54,322
Rhode Island ¹	1907	8	5	3	4,432,999	2,744,166	1,688,833	26,038
West Virginia ¹	1907	18	15	3	2,562,800	1,540,395	1,022,405	31,451
All other states ¹	1907	177	163	14	56,930,343	36,371,191	20,559,152	3,336,257
	1902	70	59	11	19,983,772	11,291,409	8,672,363	73,006

¹ Exclusive of 6 companies which failed to furnish this information.² Exclusive of 30 companies which failed to furnish this information.³ Exclusive of 18 companies which failed to furnish this information.⁴ Exclusive of 12 companies which failed to furnish this information.⁵ Exclusive of 20 companies which failed to furnish this information.⁶ Exclusive of 5 companies which failed to furnish this information.

FINANCIAL OPERATIONS.

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LESSOR COMPANIES, BY STATES: 1907 AND 1902.

EXPENDITURES.										
Aggregate.	Taxes.	Interest.			Miscellaneous (maintenance of organization, etc.).	Net income of companies reporting net income.	Deficit of companies reporting deficit.	Net income for state.	Dividends.	Surplus.
		Total.	On funded debt.	On floating debt and real-estate mortgages.						
\$19,465,984	\$926,450	\$18,030,522	\$17,702,263	\$328,259	\$509,003	\$28,452,477	\$5,212	\$28,447,265	\$28,030,542	\$418,723
8,779,294	247,436	8,376,559	8,355,677	20,882	115,290	17,359,837	232	17,359,605	17,157,091	202,514
699,514	100	612,927	612,927	73,467	401,344	401,344		401,344	355,570	45,774
77,363	18,052	43,704	38,500	15,607	35,183	35,183		35,183	44,000	17,617
23,000	3,000	20,000	20,000		20,200	20,200		20,200	20,200	
2,082,758	22,504	1,887,758	1,640,797	237,961	172,536	545,690		545,690	533,500	12,190
1,323,507		1,323,507	1,323,507		2,435,255	2,435,255		2,435,255	2,435,255	
1,382,797	4,067	1,374,870	1,374,870		3,200	562,984		562,984	558,560	4,424
758,271	1,006	741,811	738,254	3,557	15,364	1,570,229		1,570,229	1,568,633	1,596
703,967	845	695,678	682,427	13,251	9,444	1,280,989	182	1,280,807	1,272,395	8,412
1,374,619	7,630	1,364,360	1,364,360		2,629	792,231		792,231	780,970	11,261
1,163,747		1,160,560	1,160,560		8,187	420,470		420,470	399,220	21,250
7,200,569	8,073	7,191,331	7,084,345	10,986	97,165	11,675,796	1,325	11,675,471	11,680,769	14,298
1,937,801		1,908,060	1,908,060		29,741	3,763,907		3,763,907	3,747,200	16,707
1,340,120		1,317,587	1,317,587		22,533	1,838,479		1,838,479	1,838,479	
55,425		55,425	55,425			1,004,399		1,004,399	985,966	18,433
2,608,671	878,438	2,709,769	2,641,844	67,925	110,464	10,239,133	382	10,238,751	9,914,220	324,531
1,821,203	268,404	1,497,969	1,497,342	627	54,830	7,787,765	50	7,787,715	7,628,000	159,715
203,780		203,780	203,780			850,300		850,300	850,000	300
4,210	509	416	416		3,285	6,111		6,111		6,111
704,635	442	695,913	694,083	1,830	8,280	148,980	3,505	145,475	120,641	24,834
1,692,281	135	1,691,656	1,691,656		400	628,979		628,979	770,957	141,978

*Includes states as follows: 1907—California, 1; Iowa, 2; Louisiana, 1; Maryland, 2; Nebraska, 2; New Hampshire, 2; North Carolina, 1; Utah, 1; Virginia, 1; Washington, 1. 1902—Colorado, 1; Maine, 1; Maryland, 2; Missouri, 1; New Hampshire, 6.

AND LESSOR COMPANIES COMBINED, BY STATES: 1907 AND 1902.

Rentals from operating companies.	Gross income, less operating expenses.	DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES).							Net income.	Dividends.	Surplus.	
		Aggregate.	Taxes.	Interest.			Rent of leased lines and termi- nals.	Miscellane- ous deduc- tions.				
				Total.	On funded debt.	On floating debt and real- estate mort- gages.						
\$47,500,933 26,116,884	\$220,345,251 134,330,929	\$157,560,700 86,367,456	\$30,082,061 13,366,335	\$61,771,266 46,462,470	\$71,468,786 43,578,961	\$10,302,476 2,883,509	\$48,022,506 25,518,225	\$7,084,777 1,020,426	\$68,787,551 47,983,473	\$54,485,274 33,030,171	\$14,302,277 14,924,302	1 2
67,500,933 26,116,884	181,201,143 107,979,376	131,001,619 71,802,227	16,462,535 10,831,370	63,367,517 34,829,503	54,921,139 32,442,978	8,466,378 2,385,525	48,007,850 25,493,441	5,143,717 648,913	53,199,524 36,077,149	45,653,682 27,600,793	7,545,842 8,416,356	3 4
1,010,397 113,546	3,609,091 1,005,713	2,841,161 1,305,683	350,612 261,445	822,515 801,284	737,305 768,608	85,230 32,676	831,650 108,046	827,304 34,907	767,930 490,031	413,235 275,082	354,704 214,969	5 6
43,300	285,130	226,623	18,333	163,255	67,000	96,255	43,300	1,845	58,507	72,200	* 13,663	7
2,628,488 3,758,762	17,982,144 14,684,808	12,751,308 9,776,069	2,040,693 1,488,339	7,795,393 4,361,337	7,084,031 4,110,070	711,362 251,267	2,648,012 3,873,007	267,210 51,995	5,280,836 4,906,110	2,870,629 4,745,965	2,300,207 102,145	8 9
1,945,781	7,134,397	5,800,332	503,940	3,258,142	3,151,628	106,514	1,966,943	131,307	1,274,065	707,038	567,007	10
2,119,919 1,886,774	12,022,930 9,216,517	7,819,010 5,814,386	1,912,690 1,610,341	3,332,738 2,219,626	2,646,831 1,753,669	705,907 1,967,540	2,145,639 1,967,540	408,627 16,779	4,361,210 3,401,461	3,789,669 3,182,433	413,521 219,476	11 12
2,166,765 1,886,217	7,344,370 5,439,028	7,130,015 4,791,467	635,140 431,912	4,205,064 2,733,971	3,965,219 2,636,943	239,845 97,028	2,272,148 1,586,217	17,663 39,387	214,355 647,541	953,898 447,040	* 739,543 199,901	13 14
18,870,857 5,067,389	59,038,858 32,907,604	42,500,666 21,490,761	4,305,798 3,429,461	16,832,136 12,241,187	14,231,277 11,436,803	2,600,859 804,384	19,279,362 5,719,569	2,143,330 101,519	17,078,232 11,416,908	17,255,433 6,880,864	* 177,231 4,530,044	15 16
3,178,509 1,069,814	15,973,891 8,527,185	10,555,703 4,193,291	1,387,052 601,142	5,930,019 2,613,069	5,304,963 2,330,060	725,056 282,316	3,153,380 1,066,095	83,232 12,504	5,418,188 4,333,894	4,154,167 2,633,554	1,264,021 1,700,440	17 18
13,631,311 9,583,112	33,040,600 24,341,832	23,042,091 14,689,469	2,102,832 1,844,880	7,029,618 3,554,135	5,704,003 3,368,062	1,324,915 186,053	13,554,786 8,902,431	355,358 388,043	10,597,996 9,682,343	10,891,448 8,150,890	* 293,482 1,501,463	19 20
1,064,080 4,795	2,708,961 1,069,661	1,742,573 747,410	292,145 94,002	288,786 640,172	287,005 809,143	101,781 131,029	1,054,080 4,795	7,562 8,441	1,026,378 311,241	850,000 20,400	176,378 284,841	21 22
846,771 2,321,200	24,742,180 11,006,629	17,723,534 9,840,238	2,810,382 1,164,830	12,969,759 6,403,654	11,332,134 6,018,110	1,637,625 385,544	1,031,825 2,267,973	891,508 3,779	7,018,646 1,220,391	3,690,534 1,344,373	3,249,112 * 117,982	23 24

* No lessor companies reported in 1902.

* Deficit.

*Includes states as follows: 1907—California, 42; Iowa, 26; Louisiana, 12; Maryland, 15; Nebraska, 10; New Hampshire, 18; North Carolina, 12; Utah, 4; Virginia, 23; Washington, 15. 1902—Colorado, 8; Maine, 20; Maryland, 12; Missouri, 17; New Hampshire, 13.

II.

OPERATING EARNINGS AND MISCELLANEOUS INCOME.

*Operating earnings.*¹—The gross income shown in Tables 87 and 88 includes amounts derived from sources other than the operation of railway properties. Deducting these amounts, there remains as the earnings from operating \$247,553,999 in 1902 and \$418,187,858 in 1907, an increase of \$170,633,859, or 68.9 per cent.

Operating earnings include all income from any of the following sources: From passenger traffic; from chartered cars and freight, mail, and express business; from the sale of current; and from certain miscellaneous sources. Of these earnings, the income from passenger service, which includes, in addition to cash fares, money received from the sale of tickets and commutation books, and all other income derived directly from passenger traffic, constitutes the most important item. The income from chartered cars is obtained from the hire of special-purpose cars, such as observation, theater, or funeral cars. These two items and the amounts derived from the freight, mail, and express business² represent practically all the income obtained directly from the operations of the road or from the car service, amounting in 1907 to \$390,276,347 and in 1902 to \$235,997,005, an increase of \$154,279,342, or 65.4 per cent.

The income from the sale of current, either to other public-service corporations or to the general public, is the second largest item of operating earnings, and increased by \$12,389,728, or 160.8 per cent, during the census interval. This marked increase reflects the growth of the practice of operating light and power stations in connection with railways.

The miscellaneous earnings increased from \$3,853,420 in 1902 to \$7,818,209 in 1907, an absolute increase of \$3,964,789, or 102.9 per cent. These earnings are composed principally of income from advertising; rent of land and buildings, used mainly for the operation of the railway property; rent of tracks, the use of which had not been abandoned by the lessor; rent of equipment; and receipts from parks and pleasure resorts. The standard form of accounting provides that only the net income or net expense of parks, park resorts, or similar property shall be carried in the railway accounts, and that such income shall be treated as "Miscellaneous income" rather than "Miscellaneous earnings." But this practice was not followed by all the companies in their returns, some of them reporting instead the total expenses and the

gross income of such property. While the latter method of accounting tends to inflate both the income and the expenses reported, the net income in both cases is the same.

The following statement illustrates the differences in the relative importance of the different sources of revenue for the street and electric railways and the steam railroads of the country:

Per cent distribution, by source, of operating earnings of street and electric railways and steam railroads: 1907.

SOURCE.	Street and electric railways.	Steam railroads.
Operating earnings.....	100.0	100.0
Passenger service.....	91.4	21.8
Freight service.....	1.3	70.4
Mail service.....	0.2	1.9
Express service.....	0.4	2.2
All other.....	6.8	3.6

The income from passenger service represents about nine-tenths of the operating income of the electric railways and only about two-tenths of that of the steam roads. Freight business, which is just beginning to be of importance on the electric railways, furnishes slightly more than seven-tenths of the revenue of steam roads.

Operating earnings of companies, classified according to income from railway operations.—As already noted, the classification of railways according to size is based upon their income from railway operations. Thus any income from the sale of current—which is treated as operating earnings in the census statistics—and all items of income that make up the total of "Miscellaneous income," not from operation, have no effect in determining the class of any railway, however greatly they may swell its gross income.

Necessarily when street railways were confined to cities by the fact that they depended on the use of animal or cable power, almost the entire income from their operation was derived from passenger traffic. It is only recently, since the introduction of electricity and the extension of interurban roads, that any income has been obtained from freight, mail, and express business, and even at the last census, although a considerable number of companies reported income from these sources, the total amount reported represented less than 2 per cent of the total earnings. Yet these subordinate branches of railway service, representing as they do a development in operating practice that seems certain of a large future growth, possess considerable interest. The relative importance of the passenger service and the others naturally varies greatly with the size and character of the companies and the locality served.

¹ Earnings reduced to track, car-mile, and passenger units are given in the section on "general results of operation," p. 169.

² See also p. 92.

TABLE 107.—OPERATING EARNINGS, BY SOURCE, OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

SOURCE.	Census.	Total, all companies.	CLASSIFICATION GROUP.					Percent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of companies.....	1907	1,930	78	50	80	182	551	8.1	5.3	8.5	19.4	58.7
	1902	1,799	44	28	53	112	562	8.5	3.3	6.6	14.0	70.3
Per cent of increase.....		7.0	72.7	78.6	50.9	62.5	2.0					
Operating earnings, total.....	1907	\$418,187,558	\$297,082,346	\$391,597,437	\$30,210,402	\$31,752,493	\$22,565,180	71.0	8.8	7.2	7.6	5.4
	1902	\$247,553,999	\$167,743,251	\$20,531,216	\$19,212,180	\$19,440,952	\$20,626,420	67.8	8.3	7.8	7.9	8.3
Per cent of increase.....		68.9	77.1	78.3	57.2	63.3	9.4					
Passengers.....	1907	\$382,132,494	\$280,887,112	\$32,569,516	\$25,610,001	\$25,329,406	\$18,039,399	73.4	8.5	6.7	6.7	4.7
	1902	\$233,821,548	\$162,529,682	\$19,318,842	\$17,447,179	\$17,300,180	\$17,225,665	69.5	8.3	7.5	7.4	7.4
Per cent of increase.....		63.4	72.5	68.6	46.8	47.6	4.7					
Chartered cars.....	1907	\$705,261	\$437,082	\$4,709	\$70,583	\$74,000	\$38,287	82.0	12.0	10.0	10.6	5.4
	1902	\$303,608	\$172,209	\$31,329	\$32,701	\$36,027	\$30,682	56.7	10.3	10.8	12.1	10.1
Per cent of increase.....		132.3	153.7	170.4	115.8	108.7	24.8					
Freight.....	1907	\$5,231,215	\$1,571,763	\$912,003	\$1,046,410	\$1,030,376	\$670,763	30.0	17.5	20.0	19.7	12.8
	1902	\$1,038,097	\$164,712	\$50,422	\$230,640	\$166,482	\$435,841	15.9	4.9	21.3	18.0	42.0
Per cent of increase.....		403.9	854.2	1,710.5	373.8	518.9	53.9					
Mail.....	1907	\$646,575	\$448,462	\$43,283	\$38,648	\$62,024	\$54,158	89.4	6.7	6.0	9.8	8.4
	1902	\$432,080	\$287,407	\$25,273	\$34,748	\$38,976	\$45,678	66.5	5.9	8.0	9.0	10.6
Per cent of increase.....		49.6	56.0	71.3	11.2	59.1	18.0					
Express.....	1907	\$1,590,802	\$873,980	\$250,725	\$140,201	\$194,083	\$95,813	56.0	16.1	9.4	12.4	6.1
	1902	\$401,672	\$144,465	\$21,000	\$67,546	\$79,135	\$59,520	36.0	5.2	24.3	19.7	14.8
Per cent of increase.....		288.6	505.0	1,093.6	49.9	145.3	61.0					
Sale of electric current.....	1907	\$30,083,392	\$7,638,308	\$2,225,519	\$2,727,101	\$4,318,056	\$3,294,318	37.5	11.1	13.6	21.5	16.3
	1902	\$7,703,574	\$2,145,348	\$784,957	\$636,871	\$1,458,066	\$2,378,332	27.8	10.2	12.2	18.9	30.9
Per cent of increase.....		160.8	251.4	193.5	191.1	190.1	38.1					
Miscellaneous sources.....	1907	\$7,818,209	\$5,805,639	\$313,782	\$572,458	\$543,888	\$382,442	74.3	6.6	7.3	7.0	4.9
	1902	\$3,853,420	\$2,399,398	\$299,387	\$442,477	\$361,646	\$450,712	56.7	7.8	11.3	9.4	11.7
Per cent of increase.....		102.9	152.5	71.6	29.4	50.5	15.1					

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

³ Decrease.

The exclusion of the income from sale of current in classifying the companies according to size obviously results in the assignment of some companies to classes made up of smaller companies than the class to which they would have been assigned in a classification based on gross income. The average operating earnings per company in 1907, including income from the sale of current, were \$445,354; and the averages for the various classes were as follows: A, \$3,908,715; B, \$731,949; C, \$377,630; D, \$174,464; E, \$40,953. The operating earnings shown for each class as a whole are larger for 1907 than for 1902, the increases varying from 9.4 per cent for Class E to 78.3 per cent for Class B. The operating earnings per company also increased for each class except Class B, in which there was a decrease per company, although, as just stated, the class as a whole shows a larger percentage of increase than any of the others.

The largest companies, comprising Class A, account for over three-fifths of the total earnings from passengers, chartered cars, mail, and miscellaneous sources in 1907. Indeed, the only specified sources of earnings for which these large companies did not report more than half of the respective totals were freight service and the sale of electric current. Of the total freight earnings, the companies belonging to Class A still show the largest share (30 per cent), but the proportions are more evenly distributed among the classes than for any other item. The companies in Classes A and B show an increased proportion of the total in 1907 as compared with 1902 for each specified source

of earnings, while with but few exceptions the companies of Classes C, D, and E show correspondingly decreased proportion. Such a statistical showing was to have been expected as a result both of the normal growth of companies during the five-year interval and of the numerous consolidations that have been effected.

The operating earnings of all companies and of the several income classes are distributed among the specified sources by percentages, rather than by absolute amounts, in Table 108.

TABLE 108.—Per cent distribution, by source, of operating earnings of companies, classified according to income from railway operations: 1907 and 1902.

SOURCE.	Census.	PER CENT OF OPERATING EARNINGS.					
		Total.	A	B	C	D	E
Operating earnings.....	1907	100.0	100.0	100.0	100.0	100.0	100.0
	1902	100.0	100.0	100.0	100.0	100.0	100.0
Passengers.....	1907	91.4	94.4	89.0	84.8	80.4	79.9
	1902	94.5	95.9	94.1	90.8	89.0	83.5
Chartered cars.....	1907	0.2	0.1	0.2	0.2	0.2	0.2
	1902	0.1	0.1	0.2	0.2	0.2	0.1
Freight.....	1907	1.3	0.5	2.5	3.5	3.2	3.0
	1902	0.4	0.1	0.2	1.1	0.9	2.1
Mail.....	1907	0.2	0.2	0.1	0.1	0.2	0.2
	1902	0.2	0.2	0.1	0.2	0.2	0.2
Express.....	1907	0.4	0.3	0.7	0.5	0.6	0.4
	1902	0.2	0.1	0.1	0.5	0.4	0.3
Sale of electric current.....	1907	4.8	2.5	6.1	9.0	13.6	14.6
	1902	3.1	1.3	3.8	4.9	7.5	11.5
Miscellaneous sources.....	1907	1.9	2.0	1.4	1.9	1.7	1.7
	1902	1.6	1.4	1.5	2.3	1.9	2.2

The statistics in this table show clearly how largely the business of electric railways is still dependent upon passenger traffic. Although the freight and electric-light departments of electric-railway business developed greatly during the five years intervening between the censuses, the earnings from passengers carried still constituted over 90 per cent of all earnings in 1907. It is noteworthy that the percentages increase regularly with increase in the size of companies from the 79.9 per cent shown for Class E to the 94.4 per cent shown for Class A; and that the same gradation appears in the statistics for 1902.

As compared with 1902, 1907 shows a decrease in the relative importance of passenger earnings for all classes. The counterbalancing increases are in every case almost entirely confined to the items freight and express service and sale of current, since there are no considerable changes in any other items. All com-

panies combined and the several classes show a proportionate increase of earnings from freight service, and an even greater one for earnings from sale of current. Freight service attained its greatest relative importance among companies of medium size, as 3.5 per cent of the earnings shown for Class C are attributed to that source; and sale of current had its greatest relative significance for the small companies of Classes E and D, 14.6 per cent and 13.6 per cent, respectively, of the earnings of these classes, being attributed to this source.

Operating earnings of companies with and without commercial lighting, and of part-time companies.—The operating earnings of companies "Without commercial lighting" and "With commercial lighting," respectively, and of "Part-time" companies, are distributed among the specified sources by their absolute amounts in Table 109, and by their percentages in Table 110.

TABLE 109.—OPERATING EARNINGS, BY SOURCE, OF COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

SOURCE.	CLASSIFICATION GROUP.									
	TOTAL, ALL COMPANIES.		Without commercial lighting. ¹		With commercial lighting.		Part-time.		Per cent of increase.	
	1907	1902	1907	1902	1907	1902	1907	1902	Total.	With- out light- ing.
Number of companies.....	1939	1799	700	630	1175	112	35	57	17.5	12.5
Operating earnings, total.....	\$618,187,858	\$247,533,999	\$347,955,013	\$222,989,978	\$668,986,416	\$22,088,656	\$1,246,429	\$2,475,365	68.9	26.0
Passengers.....	262,132,494	233,821,518	331,504,175	210,362,393	49,500,161	15,084,584	1,128,158	2,344,571	63.4	53.2
Chartered cars.....	705,261	304,698	550,830	261,654	144,662	38,949	746	3,005	132.3	114.0
Freight.....	5,201,215	1,038,067	4,077,049	834,233	1,121,752	182,076	32,414	21,788	403.9	288.7
Mail.....	646,575	432,080	577,721	409,376	68,478	29,623	376	2,081	49.6	41.1
Express.....	1,500,802	401,672	1,130,824	378,005	413,575	17,500	7,003	5,419	288.6	201.0
Sale of electric current.....	20,093,202	7,703,574	3,594,084	1,196,025	16,530,497	6,445,542	58,411	62,007	160.8	150.0
Miscellaneous sources.....	7,818,280	3,853,420	6,592,507	3,517,004	1,206,581	269,322	19,321	30,194	102.9	87.4

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of 6 companies which failed to furnish this information.

³ Exclusive of 18 companies which failed to furnish this information.

⁴ Exclusive of 2 part-time companies.

⁵ Decrease.

TABLE 110.—Per cent distribution, by source, of operating earnings of companies with and without commercial lighting, and of part-time companies: 1907 and 1902.

SOURCE.	PER CENT OF OPERATING EARNINGS.							
	Total, all companies.		Without commercial lighting.		With commercial lighting.		Part-time.	
	1907	1902	1907	1902	1907	1902	1907	1902
Operating earnings.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Passengers.....	91.4	94.5	95.3	97.0	71.8	68.5	90.5	91.7
Chartered cars.....	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.1
Freight.....	1.3	0.4	1.2	0.4	1.6	0.8	2.6	0.9
Mail.....	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Express.....	0.4	0.2	0.3	0.2	0.6	0.1	0.6	0.2
Sale of electric current.....	4.8	3.1	1.0	0.5	24.9	29.2	4.7	2.5
Miscellaneous sources.....	1.9	1.6	1.9	1.6	1.7	1.3	1.6	1.5

¹ Less than one-tenth of 1 per cent.

As previously explained, the amount of income from the sale of current reported by companies without commercial lighting represents small amounts received

from the incidental sale of current for power, from the sale of current to other railway companies, and from the sale of current to electric light and power companies for distribution. Although the proportion of total income from sale of current for companies classified as without commercial lighting was slightly larger in 1907 than in 1902, it did not rise above 1 per cent of the total even in 1907. The service, in the case of such companies, can not properly be considered as constituting a regular light and power department, since it is in the nature of a wholesale business and is not attended by the expense of distributing the current.

Table 110 makes it clear, as might have been expected, that the sale of current by the companies "With commercial lighting" changes the relative proportions of earnings from sale of current and from passenger service, inversely, and that it does not appreciably affect the proportions attributable to the

other sources, severally or as a whole. And even as to these proportions there was a tendency to uniformity in the census interval, since passenger earnings fell from 97 per cent to 95.3 per cent of gross operating earnings in the case of companies without commercial lighting, while in the case of companies with commercial lighting the same proportion increased from 68.3 per cent to 71.8 per cent; and on the other hand, income from sale of current increased for companies without commercial lighting from five-tenths of 1 per cent to 1 per cent, while it decreased for the other

class from 29.2 per cent to 24 per cent. The part-time companies also show a relative decrease in passenger earnings and counterbalancing increases in sale of current and freight service.

Operating earnings of companies, classified according to kind of system and character of service.—The operating earnings for the companies, classified according to kind of system and character of service, are distributed among the specified sources by absolute amounts in Table 111, and by their percentages in Table 112.

TABLE 111.—OPERATING EARNINGS, BY SOURCE, OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

SOURCE.	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of companies.....	939	6	933	50	100	789
Operating earnings, total.....	\$418,187,858	\$33,874,054	\$384,313,804	\$29,155,121	\$1,407,010	\$387,625,718
Passengers.....	382,132,404	31,601,516	350,530,978	25,485,341	1,288,892	355,358,251
Chartered cars.....	705,261	705,261	705,261	100,302	1,347	603,612
Freight.....	5,231,215	5,231,215	5,231,215	1,431,811	74,519	3,724,885
Mail.....	648,575	17,948	628,627	37,082	7,782	601,711
Express.....	1,560,802	31,721	1,529,081	420,710	7,405	1,132,687
Sale of electric current.....	20,093,302	107,775	19,985,527	1,230,328	4,085	18,879,909
Miscellaneous sources.....	7,818,209	2,115,094	5,703,115	470,567	22,990	7,324,658

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Exclusive of 6 companies which failed to furnish this information.

TABLE 112.—Per cent distribution, by source, of operating earnings of companies, classified according to kind of system and character of service: 1907.

SOURCE.	Total, all companies.	PER CENT OF OPERATING EARNINGS.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways.	Electric surface railways.	Selected interurban lines.	Selected small urban roads.	All other railways.
Operating earnings.....	100.0	100.0	100.0	100.0	100.0	100.0
Passengers.....	91.4	93.3	91.2	87.4	91.6	91.7
Chartered cars.....	0.2	.....	0.2	0.3	0.1	0.2
Freight.....	1.3	.....	1.4	4.9	5.3	1.0
Mail.....	0.2	0.1	0.2	0.1	0.0	0.2
Express.....	0.4	0.1	0.4	1.4	0.5	0.3
Sale of electric current.....	4.8	0.3	5.2	4.1	0.3	4.9
Miscellaneous sources.....	1.9	0.2	1.5	1.6	1.6	1.9

As the selected groups in these tables are typical rather than comprehensive, the principal interest of the statistics lies in the figures showing the per cent distribution of the total operating earnings rather than in the figures showing absolute amounts. Aside from the miscellaneous earnings from advertising, rents, etc., the passenger receipts are practically the only source of revenue on elevated and subway railways.

The per cent ratio of passenger earnings to total operating earnings is considerably lower for the 50 selected interurban lines than for any other class in

the table. A low ratio was to be expected, in view of the extent to which such roads have developed freight and express business during recent years. Though the selected small urban roads show a larger proportion for freight than do the interurban, it appears from Table 111 that the absolute amount received by the 100 small urban roads was only about one-twentieth the amount reported by the 50 interurban. And even this small amount represents for the most part the earnings of two or three companies carrying a special line of freight on short hauls.

Operating earnings, by states.—Table 116 presents a detailed analysis of the statistics of operating earnings for 1907 and 1902, for the geographic divisions and for the several states. New York, with its dense centers of population, naturally leads in total earnings, with \$89,856,329 in 1907, while North and South Dakota bring up the rear, with combined earnings of only \$112,079. New York also ranks first in earnings from mail service, \$93,186; from express business, \$438,994; and from miscellaneous sources, \$2,658,612. Ohio shows the largest amount reported for revenue from freight, \$693,638. In 1902 the leading states were the same, except that Michigan, instead of New York, ranked first in the amount of revenue from express business. In earnings from sale of electric current, Ohio led in 1907, with \$1,607,599, and Georgia in 1902, with \$727,847.

TABLE 113.—*Percent distribution, by source, of operating earnings, by geographic divisions: 1907.*

DIVISION.	PER CENT OF TOTAL FOR UNITED STATES.							
	Operating earnings, total.	Passenger.	Chartered cars.	Freight.	Mail.	Ex-press.	Sale of electric current.	Miscellaneous sources.
United States	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic	46.3	48.1	43.7	22.4	44.7	50.0	17.8	51.5
South Atlantic	6.8	0.0	3.6	4.0	9.3	4.9	23.7	5.4
North Central	31.8	31.6	29.8	45.1	36.1	37.1	29.5	33.8
South Central	5.9	5.5	4.8	3.2	3.0	0.6	14.7	3.6
Western	9.2	8.8	16.1	27.2	6.9	7.4	14.4	5.7

The railways in the North Atlantic and North Central divisions combined reported over three-fourths of the total operating earnings of all companies, but, as was the case in respect to other traffic statistics, the Western states showed the highest rate of gain in earnings, 128.3 per cent. Of the several classes of revenue in 1907, the most marked examples of localization appear in miscellaneous earnings and express earnings in the North Atlantic division. This division also reported 48.1 per cent of all passenger earnings, 45.7 per cent of the total revenue from chartered cars, and 44.7 per cent of the total receipts from carrying mail. The largest proportion of the total freight earnings was reported for the North Central division, which also reported the largest percentage of the earnings from the sale of electric current.

Miscellaneous income.—The term "Miscellaneous income" is used to designate all receipts or income from sources other than the operation of railway property. In 1907 miscellaneous income of operating companies amounted in the aggregate to \$11,556,396 as compared with \$2,950,628 in 1902, an increase of \$8,605,768, or 291.7 per cent. This apparently large increase may be due partly to the fact that the schedule of inquiry for 1902 did not call for full details concerning this class of income. It is thus possible that it was not fully reported or entirely separated from other earnings at that time. Table 114 analyzes the aggregate miscellaneous income for 1907 and shows the totals for geographic divisions and states.

The total, \$3,255,618, received by all operating companies in the United States from interest on bonds and dividends on stocks of other electric railways, represents an average return of only 1.55 per cent on the book value of such holdings as reported to the Census Bureau in the balance-sheet statements of the companies. In part explanation of this showing, it should be stated that of the 108 operating companies that reported such security holdings, only about two-fifths reported any return on the investments. It is probable that a very great proportion of these securities were common stock, acquired for purposes of control or consolidation, with little or no expectation of immediate dividends. Even with this explanation, however, it should be added that the

figures are probably among the least reliable of all with which the census of street and electric railways has to deal.

TABLE 114.—*Miscellaneous income, by source, of operating companies, by states and geographic divisions: 1907.*

STATE OR TERRITORY.	Total.	SOURCE.		
		Interest on bonds and dividends on stocks of other electric railways.	Other permanent investments.	Other miscellaneous income.
United States	\$11,556,396	\$3,255,618	\$4,972,164	\$3,328,614
North Atlantic division	3,400,886	1,301,888	680,068	1,518,930
Maine	33,549		29,561	3,987
New Hampshire	3,225			3,225
Vermont	12,863		10,000	2,863
Massachusetts	148,459		2,569	145,890
Rhode Island	26,038	19,120		6,918
Connecticut	107,427	8,687	85,324	13,416
New York	1,829,344	491,268	329,027	1,009,049
New Jersey	187,126	22,237	67,999	96,920
Pennsylvania	1,052,956	660,581	155,586	236,887
South Atlantic division	1,072,998	115,253	795,093	162,652
Delaware	2,015			2,015
Maryland and District of Columbia	515,379		421,420	37,671
Virginia	249,242	36,750	143,168	69,334
West Virginia	25,825		9,505	16,420
North Carolina	109,008	22,415	68,739	17,854
South Carolina	62,840		61,374	1,466
Georgia	104,256		90,897	13,351
Florida	4,331			4,331
North Central division	2,500,410	547,725	1,096,074	856,620
Ohio	892,226	145,747	568,505	167,974
Indiana	272,221	20,973	134,058	117,192
Illinois	363,588	26,474	202,158	274,936
Michigan	83,386		26,004	57,382
Wisconsin	527,753	354,031	79,593	94,129
Minnesota	8,138			8,138
Iowa	95,210	500	31,454	63,256
Missouri	82,484		30,917	51,567
North and South Dakota	50			50
Nebraska	6,348			6,348
Kansas	30,033		23,485	15,548
South Central division	1,804,383	780,666	963,128	60,589
Kentucky	15,885		14,022	1,863
Tennessee	37,160	20,000	14,033	3,127
Alabama	101,497	674	97,285	3,538
Mississippi	88,529		78,718	9,811
Louisiana	1,496,871	759,002	699,929	26,940
Arkansas	56,442		59,036	406
Oklahoma	13,761		86	13,675
Texas	1,357			1,357
Western division	2,777,710	610,086	1,437,901	729,823
Montana	142,420		137,266	5,154
Colorado	352,292	206,974	1,286	44,022
Washington	503,917	13,200	211,582	279,035
Oregon	806,316	284,955	508,090	13,271
California	854,084	4,957	667,219	361,908
All other Western states and territories ¹	28,781		2,348	26,433
Hawaii and Porto Rico	8,421	3,177		5,244

¹ Includes states and territories as follows: Nevada, New Mexico, and Utah.

The income from "Other permanent investments," representing the return to the railway companies on their investments in all sorts of allied industries, amounted to \$4,972,164, or an average rate of 3.64 per cent on a total reported investment of \$136,768,104. The income reported for this item is, in the majority of cases, the net amount, and the average rate of return on the total investment, therefore, represents a fair rate of interest. About two-thirds of the 198 operating companies that reported investments of this character reported also an income from this source.

The income from all sources other than those specified was consolidated for census purposes under a single heading, designated as "Other miscellaneous income." It amounted in 1907 to \$3,328,614. This total is made up of interest on deposits; rent of tracks, the use of which had been abandoned by the lessor; rent of land and buildings, conducted as an outside investment; etc.

An interesting feature of interurban railway promotion was brought to light by a miscellaneous income item of \$26,915, which was reported as "subsidy." The company explained that a subsidy had been voted the railway by farmers and merchants along the right of way, to be paid in two annual installments, and that the amount reported for 1907 was the second or last installment. The proceeds of this subsidy were used to pay the interest on bonds for the first two years after the road began operation.

Miscellaneous income shows little or no tendency to vary directly or inversely with operating earnings, either from time to time or from company to company. Indeed, the miscellaneous income item seems to vary according to no discoverable principle. Thus at the census of 1902, 53.1 per cent of the total for this item was reported for New York and 29.3 per cent for Illinois, a total of 82.4 per cent for these two states; while in 1907 the percentages were only

15.8 for New York and 4.4 for Illinois, a total for the two of only 20.2 per cent. Table 114 shows that the states of the North Atlantic division reported by far the largest part of the totals for interest on bonds and dividends on stocks of the electric railways, and for other miscellaneous income; but that it reported the smallest part of the total for income from other permanent investments.

Table 115 presents the miscellaneous income of operating companies by income classes. It appears by the table that although the companies of Class A—the largest companies—still received in 1907 over one-half of all the miscellaneous income, the proportion for the class had fallen since 1902 from almost 90 per cent.

TABLE 115.—Miscellaneous income of operating companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	1907	1902
Total, all companies.....	\$11,556,296	\$2,050,028
A. \$1,000,000 and over.....	\$6,008,637	\$2,585,249
Per cent of total.....	52.0	87.6
B. \$500,000 but less than \$1,000,000.....	\$2,047,145	\$32,815
Per cent of total.....	17.7	1.1
C. \$250,000 but less than \$500,000.....	\$607,264	\$80,872
Per cent of total.....	5.3	2.7
D. \$100,000 but less than \$250,000.....	\$1,732,025	\$54,024
Per cent of total.....	15.0	1.9
E. Less than \$100,000.....	\$1,161,305	\$197,066
Per cent of total.....	10.0	6.7

TABLE 116.—OPERATING EARNINGS, BY SOURCE, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	Number of companies.	OPERATING EARNINGS.							
			Total.	Passengers.	Chartered cars.	Freight.	Mail.	Express.	Sale of electric current.	Miscellaneous sources.
United States.....	1907	1930	\$418,187,838	\$382,132,494	\$705,261	\$5,231,215	\$646,575	\$1,589,802	\$39,003,302	\$7,518,209
	1902	1799	247,553,999	233,821,548	303,608	1,038,007	432,080	401,672	7,703,574	3,880,420
North Atlantic division.....	1907	305	193,826,037	183,757,513	322,326	1,068,075	289,234	780,341	3,582,074	4,026,494
	1902	356	131,031,080	126,492,180	157,241	416,527	200,736	125,119	1,362,546	2,279,431
Maine.....	1907	17	2,250,649	1,872,405	4,217	95,075	9,300	13,135	228,537	37,020
	1902	19	1,542,508	1,311,198	231	80,380	6,179	9,409	102,315	32,773
New Hampshire.....	1907	10	1,088,957	1,022,365	3,575	13,726	4,350	530	21,238	23,006
	1902	7	604,131	579,546	1,182	4,050	120	10,625	8,608	8,608
Vermont.....	1907	10	441,380	380,650	836	38,622	2,610	3,800	9,779	5,043
	1902	9	249,228	216,013	23,351	23,351	2,201	1,708		5,893
Massachusetts.....	1907	62	30,925,503	29,524,676	103,489	72,640	73,743	50,695	471,704	628,585
	1902	74	23,617,570	22,807,316	43,182	12,876	48,454	4,140	250,109	451,493
Rhode Island.....	1907	5	4,432,909	4,120,599	15,757	33,917	3,763	143,827	69,489	36,647
	1902	7	2,961,240	2,874,255	1,963	43,835	1,769	536	25,687	16,215
Connecticut.....	1907	8	7,271,969	6,267,553	21,770	32,405	9,642	49,304	763,942	136,953
	1902	21	4,291,069	3,829,084	12,435	16,632	6,807	16,040	348,237	54,204
New York.....	1907	101	89,856,320	84,046,880	77,453	612,465	93,185	428,994	1,369,339	2,658,612
	1902	96	59,312,606	57,347,930	53,478	197,324	65,077	64,213	471,509	1,116,135
New Jersey.....	1907	24	12,995,532	12,682,531	40,108	20,105	7,252	198	83,494	61,844
	1902	25	8,137,477	7,980,544	21,585	5,364	4,822	96	15,459	100,607
Pennsylvania.....	1907	122	44,654,130	43,281,845	55,131	148,720	85,428	79,817	564,497	438,692
	1902	98	30,319,211	29,537,294	24,407	36,593	61,377	28,477	188,022	493,501
South Atlantic division.....	1907	100	26,531,988	22,065,107	25,081	210,613	59,924	76,333	4,736,566	418,364
	1902	75	14,989,177	12,794,719	16,354	74,735	40,990	13,167	1,754,372	286,811
Delaware.....	1907	4	756,168	674,456	584	7,421	64	15	99,073	4,555
	1902	3	500,412	476,539	494	2,270			5,112	15,097
Maryland and District of Columbia.....	1907	19	11,617,214	11,246,502	4,419	35,897	48,975	15,083	145,050	120,678
	1902	18	7,993,313	7,599,763	9,949	16,310	42,168	11,169	62,683	151,271
Virginia.....	1907	22	5,152,173	3,531,681	6,390	70,356	4,184	100	1,437,067	102,375
	1902	16	1,553,478	1,103,732	2,095	12,791	1,617	368	387,031	45,903
West Virginia.....	1907	15	2,562,900	2,139,823	1,925	18,372	1,631	35,100	333,565	32,384
	1902	8	1,102,171	958,805	100	6,160	755		126,117	10,234
North Carolina.....	1907	11	1,186,469	880,472	845	14,953	453	2,353	473,651	13,737
	1902	7	437,259	247,612	75	8,367		1,500	103,637	15,848

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

TABLE 116.—OPERATING EARNINGS, BY SOURCE, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Cont'd.

STATE OR TERRITORY.	Census.	Number of companies.	OPERATING EARNINGS.							
			Total.	Passengers.	Chartered cars.	Freight.	Mail.	Express.	Sale of electric current.	Miscellaneous sources.
South Atlantic division—Continued.										
South Carolina.....	1907	7	\$1,273,017	\$793,950	\$1,186	\$17,384	\$856	\$10,376	\$437,483	\$12,370
	1902	7	567,577	401,533	61	16,579	1,504		171,502	8,318
Georgia.....	1907	12	4,016,337	2,962,637	7,592	31,574	2,919	12,487	1,484,966	113,942
	1902	10	2,375,224	1,594,982	4,972	9,772	440	130	727,847	37,061
Florida.....	1907	10	1,267,210	955,390	2,140	14,656	842	204	375,691	18,317
	1902	6	529,743	411,543	667	2,486	615		110,303	4,179
North Central division.										
	1907	293	132,783,152	120,840,159	210,514	2,361,058	234,451	579,355	5,917,478	2,640,837
	1902	235	73,285,248	68,751,008	100,713	328,619	145,621	253,020	2,729,138	979,090
Ohio.....	1907	73	39,862,675	27,007,611	61,887	683,638	48,141	334,312	1,607,509	836,487
	1902	62	16,587,693	15,293,916	37,430	211,842	35,171	57,679	602,619	349,016
Indiana.....	1907	23	11,224,545	9,615,612	19,539	403,122	6,951	73,254	383,177	462,803
	1902	26	3,813,076	3,332,579	6,858	18,781	1,977	17,863	144,323	90,666
Illinois.....	1907	70	40,448,084	37,453,153	33,683	450,315	66,965	120,593	1,301,130	1,022,253
	1902	48	24,164,965	23,270,828	12,615	23,165	42,596	10,168	519,938	286,635
Michigan.....	1907	24	10,946,588	9,915,719	45,846	519,932	18,483	10,114	346,855	97,637
	1902	24	6,494,691	6,014,842	20,313	47,904	11,143	153,224	195,428	51,837
Wisconsin.....	1907	20	6,135,064	5,069,530	15,896	4,230	1,348	6,007	971,995	65,405
	1902	17	3,902,029	3,155,168	11,480		763	282	680,284	43,771
Minnesota.....	1907	5	7,048,370	6,943,683	9,089	1,871	4,915		80,636	28,176
	1902	5	3,727,648	3,650,493	4,138		4,235		49,080	19,012
Iowa.....	1907	24	4,295,930	3,415,603	1,435	173,415	6,831	12,109	579,115	107,422
	1902	22	2,384,421	1,939,965	984	17,548	5,299	9,132	296,730	94,793
Missouri.....	1907	14	18,000,348	17,266,141	13,005	34,300	67,945	15,772	432,174	180,311
	1902	16	10,091,220	10,422,530	5,652	7,379	41,071	4,392	172,636	38,154
North and South Dakota ¹	1907	5	112,079	100,273			613			11,193
Nebraska.....	1907	8	2,737,756	2,584,425	3,435	754	9,285	4,590	84,041	51,217
	1902	4	1,148,994	1,107,494	1,044		2,698		33,073	2,686
Kansas.....	1907	17	1,439,613	1,268,709	3,128	19,481	1,974	2,005	136,736	7,780
	1902	11	370,481	343,197	200		866		23,007	3,511
South Central division.										
	1907	90	24,548,631	21,080,302	33,531	168,201	19,121	9,264	2,944,208	284,904
	1902	66	14,385,391	10,480,285	10,630	41,259	10,656	6,243	746,376	80,932
Kentucky.....	1907	13	4,776,088	4,441,791	7,319	20,299	2,546		190,629	111,484
	1902	12	2,932,901	2,780,487	1,407	2,500	2,108	4,162	133,337	8,840
Tennessee.....	1907	9	4,443,891	3,698,013	5,833	4,508	7,967		701,683	25,887
	1902	8	1,890,835	1,739,690	68	1,239	4,836		86,901	14,111
Alabama.....	1907	10	3,366,979	2,577,777	6,304	78,530	2,022	282	671,425	29,039
	1902	9	1,497,351	1,133,266	2,211	34,694	1,615	1,862	318,690	3,943
Mississippi.....	1907	8	517,799	488,064	143		400	833	308,063	1,523
	1902	5	259,654	154,597	113				103,296	708
Louisiana.....	1907	11	4,509,104	4,284,357	5,604		1,740		191,728	24,675
	1902	8	2,910,244	2,835,262	4,457		1,082		37,733	31,090
Arkansas.....	1907	8	1,216,954	824,335	1,001	444	240	245	383,235	6,464
	1902	7	371,560	322,905	114	26			45,630	2,985
Oklahoma ²	1907	8	564,196	529,455	942	12,182	674	798	16,708	3,437
Texas.....	1907	23	4,856,640	4,245,600	6,385	1,565	2,932	7,106	510,757	82,395
	1902	17	1,547,946	1,501,198	2,250	3,000	555	719	20,829	19,275
Western division.										
	1907	91	38,498,030	33,460,113	113,409	1,423,168	44,845	115,509	2,992,976	447,610
	1902	67	16,969,103	15,294,366	16,680	178,967	28,098	3,773	1,111,142	227,127
Montana.....	1907	6	769,201	613,251		54,575			77,993	14,382
	1902	5	492,023	382,452		50,544	365	84	45,294	15,344
Colorado.....	1907	11	4,130,962	3,696,500	15,887	55,856	1,584		344,468	16,667
	1902	7	2,277,290	2,091,824	8,106		2,000		111,104	14,252
Washington.....	1907	14	7,998,743	6,070,085	15,980	529,567	9,150	16,000	1,182,423	74,878
	1902	8	2,542,006	1,813,150	3,233	63,501	1,883		641,800	18,884
Oregon.....	1907	8	2,731,674	2,529,900		164,551	6,690	600		29,843
	1902	6	1,042,905	909,231	507	17,287	2,904	163	33,322	19,291
California.....	1907	41	20,091,713	19,233,083	75,059	600,815	26,283	97,346	386,596	292,558
	1902	35	9,967,298	9,464,723	3,637	47,625	20,116	3,576	279,216	148,395
All other Western states and territories ³	1907	12	2,284,737	1,310,604	6,683	17,801	1,138	1,503	921,520	19,282
	1902	6	687,705	572,970	1,197		800		2,216	10,522
Hawaii and Porto Rico ⁴	1907	4	745,338	611,467	3,337	13,239	60	1,560	108,061	7,594
	1902	5	515,913	485,238	301	25			26,454	3,876

¹ No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.² No company reported in 1902.³ Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.⁴ Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

III.

OPERATING EXPENSES.

Differences in length of track, in character of road-bed and rolling stock, in gradient, in kind of power used, in character of territory traversed, in cost of labor, in relative importance of allied industries, and many other factors have more or less effect on the amounts expended annually by street and electric railways for the different items of operating expenses. In the case of no two roads are all these conditions the same, and comparisons between different companies or groups of companies are therefore of interest and value only because they illustrate the variations. To be of the greatest value, comparative statistics should be accompanied by a detailed description of the equipment, methods, and other conditions which affect the financial results of operation of the different companies. This is obviously impossible in a census report which must cover all companies, but the influence of these conditions should be kept in mind in considering the statistics. As the most disturbing single factor is, perhaps, the operation of commercial electric light and power plants or other industries by the railway companies, the census methods of compiling the statistics for such companies should be referred to in this connection.¹

The operating cost per unit is commonly used in judging the efficiency of the operating management. By itself, however, it is not an indication of the profitability of railway properties, as taxes and other fixed charges must be taken into account. Indeed, when the operating expenses for only a few companies are compared, the local conditions under which each company operates must be thoroughly understood, or the cost per unit will lead to erroneous conclusions. A comparison of operating expenses with earnings, reduced to units of equipment and traffic, will be found in the section on "General results of operation," page 169.

As it is impossible to present financial data for each company in the census statistics, state and other group totals for operating expenses can be used for making comparisons and deductions only in a general way. Table 117 shows the operating expenses in detail for the United States as a whole at the censuses of 1907 and 1902, together with the per cent distribution of the total and the per cent of increase in each account. A list of the principal items chargeable to each account will be found in the appendix to this report.

A new account, "Hired equipment," appears in the report for 1907 under the subhead "Operation of cars." To this account was charged the rental of cars, equipment of cars, and other equipment, the total amount so charged being \$573,829.

The standard form of accounting provides for two accounts, "damages" and "legal expenses in connection with damages," under the head of general expense, but apparently this segregation is not carried out by all companies, as many stated their inability to separate them. Accordingly the two accounts were combined in the census tables and designated as "Damages and legal expenses incident thereto."

The increase in the total operating expense from 1902 to 1907 was \$108,996,655, or 76.6 per cent, as compared with an increase of \$170,633,859, or 68.9 per cent in the operating earnings. The increase in the total deductions from income (taxes and fixed charges) for the same period was 78 per cent as compared with an increase of 71.6 per cent in gross income. While the totals for the entire country thus show a higher rate of increase in both operating expenses and fixed charges than in operating earnings and gross income, there are of course numerous exceptions to this prevailing tendency.

Of the more important items, the rate of increase in the cost of purchased power is conspicuously large, 218.8 per cent. The bulk of the amount reported under this head represents cost of current purchased from other railways and central electric stations, the remainder being for hired steam or water power. The total expense for maintenance of track and roadway also shows an unusually large gain, 132.6 per cent. In only one account, stable expenses, is an actual decrease indicated for the five years, but with the practical disappearance of the use of animal power for street railways a diminution in the amount reported under this head was to be expected.

One of the largest single items of expense is that for damages and legal expenses incident thereto, which amounted in 1907 to \$18,176,305 as compared with \$9,395,545 in 1902, an increase of \$8,780,760, or 93.5 per cent. The ratio of the cost of damages to the total expenses increased from 6.6 per cent in 1902 to 7.2 per cent in 1907. The average damage cost per fare passenger carried was one-fifth of 1 cent in 1902 as compared with nearly one-fourth of 1 cent in 1907. In other words, as the average fare received per passenger carried on all electric railways in 1902 was 4.94 cents and in 1907, 5.15 cents,² practically 4 per cent of the fare in 1902 and 4.7 per cent in 1907 was required for damages.

The cost of maintenance of ways and structures and of equipment together constituted over one-fifth of the total expense in 1907; the cost of operating power plants, a somewhat smaller proportion, 17.5 per cent; the cost of operation of cars, exactly two-fifths; the general or miscellaneous expenses, practically the same proportion as the cost of operation of cars, or 17.3 per cent; while wages, supplies, and expenses incident to electric-light service constituted only 2.5 per cent of the total. For two of the expense accounts,

¹ See p. 116.² See Table 68.

"Operation of cars" and "General," decreased proportions of the total expenses are reported for 1907 as compared with 1902; the other four accounts show increased proportions. The remarkably uniform per-

centages of the aggregate for the several accounts for 1907 and 1902, indicate strongly the influence of the standardization of accounts and the exactness of the returns.

TABLE 117.—OPERATING EXPENSES, BY ACCOUNTS: 1907 AND 1902.

ACCOUNT.	1907		1902		Per cent of increase.
	Amount.	Per cent of total.	Amount.	Per cent of total.	
Number of companies.....	1939		1799		
Aggregate.....	\$251,309,252	100.0	\$142,312,507	100.0	78.6
Maintenance of ways and structures, total.....	25,675,327	10.2	12,118,206	8.5	111.9
Track and roadway.....	19,978,515	7.6	8,158,031	5.7	132.6
Electric, cable, etc., lines.....	4,777,097	1.9	2,959,182	2.1	61.5
Buildings and fixtures.....	1,919,115	0.8	1,000,993	0.7	91.8
Maintenance of equipment, total.....	31,465,810	12.5	16,676,532	11.7	88.8
Steam plant.....	2,632,364	1.1	1,353,789	1.0	93.9
Electric, cable, etc., plants.....	1,181,653	0.5	826,604	0.6	43.0
Cars.....	13,814,296	5.5	7,659,426	5.4	80.4
Electric, cable, etc., equipment of cars.....	10,753,321	4.3	5,325,125	3.7	101.9
Miscellaneous.....	886,724	0.4	658,475	0.5	32.6
Miscellaneous shop expenses.....	2,197,462	0.9	842,711	0.6	160.8
Operation of power plant, total.....	43,972,069	17.5	23,062,328	16.2	90.7
Wages.....	7,470,355	3.1	4,590,487	3.2	71.2
Fuel.....	21,038,259	8.4	12,827,322	9.0	64.2
Water.....	1,091,283	0.4	634,026	0.4	72.1
Lubricants and waste.....	675,885	0.3	603,007	0.4	34.9
Miscellaneous supplies and expenses.....	928,629	0.4	629,008	0.4	47.6
Purchased power.....	12,342,238	4.9	3,871,518	2.7	218.8
Operation of cars, total.....	100,542,108	40.0	62,454,679	43.9	61.0
Superintendence of transportation.....	3,545,418	1.4	2,508,905	1.8	26.4
Wages of conductors.....	37,814,621	15.0	24,070,921	16.9	57.1
Wages of motormen.....	37,021,805	14.7	24,802,872	17.3	50.1
Wages of other car-service employees.....	5,036,984	2.0	2,595,652	1.8	94.8
Wages of car-house employees.....	6,719,370	2.7	3,214,005	2.3	109.0
Car-service supplies.....	2,137,024	0.9	1,905,155	1.3	12.2
Miscellaneous car-service expenses.....	4,827,306	1.9	1,924,590	1.4	150.8
Hired equipment.....	573,829	0.2	(¹)		
Cleaning and sanding track.....	1,488,567	0.8	730,981	0.5	158.4
Removal of snow and ice.....	957,031	0.4	750,950	0.5	27.4
General, total.....	43,464,465	17.3	25,812,009	18.1	68.4
Salaries of general officers.....	4,937,900	1.9	2,963,123	2.1	61.6
Salaries of clerks.....	3,980,579	1.6	2,287,723	1.6	75.6
Printing and stationery.....	828,962	0.3	686,381	0.3	68.9
Miscellaneous office expenses.....	946,237	0.4	666,997	0.5	88.3
Stores expenses.....	616,760	0.2	229,737	0.2	169.1
Stable expenses.....	1,022,304	0.4	1,430,000	1.0	28.5
Advertising and attractions.....	1,730,851	0.7	1,122,816	0.8	54.2
Miscellaneous general expenses.....	3,173,979	1.3	2,001,821	1.4	53.9
Damages and legal expenses incident thereto.....	18,176,305	7.2	9,395,545	6.6	93.5
Other legal expenses.....	1,325,550	0.5	1,017,854	0.7	30.2
Rent of land and buildings.....	970,424	0.4	608,344	0.4	59.5
Rent of trucks and terminals.....	2,768,796	1.1	1,471,293	1.0	88.2
Insurance.....	3,137,071	1.2	2,080,875	1.5	50.8
Wages, supplies, and expenses incident to electric service, not elsewhere included.....	6,168,873	2.5	2,188,753	1.5	181.8

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 14 companies which failed to furnish this information.

³ Not reported separately.

⁴ Decrease.

Although the relative importance of all of the various items of expenses incident to the operation of power plants, with the exception of the cost of purchased power, either decreased or remained stationary, the increase in that item was so great that the power-plant expense as a whole formed a larger percentage of the total expenses in 1907 than in 1902.

In the census report of 1902 a table was presented showing the per cent distribution of the total operating expenses among the several accounts for 17 selected surface railways in the largest cities. Owing to changes and consolidations, comparable figures for these companies could not be obtained for 1907, but a table has been prepared and presented here, which shows the per cent distribution of operating expenses in 1907 and 1902 for 13 selected surface railways in the

largest cities, most of which were represented in the corresponding table in 1902. The 13 companies are as follows:

Boston and Northern Street Railway Company.

Brooklyn Rapid Transit system (8 separate operating reports in 1907).

Chicago City Railway Company.

Chicago Union Traction Company.

Cincinnati Traction Company.

Cleveland Electric Railway Company.

Crosstown Street Railway Company of Buffalo.

International Railway Company (Buffalo).

Philadelphia Rapid Transit Company.

Pittsburg Railway Company.

United Railroads of San Francisco.

United Railways and Electric Company of Baltimore.

United Railways Company of St. Louis.

TABLE 118.—*Per cent distribution, by accounts, of operating expenses of 13 selected railway companies in the largest cities: 1907 and 1902.*

ACCOUNT.	PER CENT OF TOTAL OPER- ATING EX- PENSES.	
	1907	1902
Aggregate for 13 selected companies.....	100.0	100.0
Maintenance of ways and structures, total.....	10.1	7.7
Track and roadway.....	7.5	3.6
Electric, cable, etc., lines.....	1.8	3.5
Buildings and fixtures.....	0.8	0.6
Maintenance of equipment, total.....	12.5	12.4
Steam plant.....	1.1	1.1
Electric, cable, etc., plant.....	0.5	0.9
Cars.....	6.1	6.2
Electric, cable, etc., equipment of cars.....	4.4	4.0
Miscellaneous.....	0.4	0.4
Miscellaneous shop expenses.....	1.1	0.8
Operation of power plant, total.....	14.6	14.0
Power-plant wages.....	2.6	3.1
Fuel for power.....	7.1	8.2
Water for power.....	0.4	0.4
Lubricants and waste for power plant.....	0.2	0.3
Miscellaneous supplies and expenses of power plant.....	0.4	0.3
Power purchased.....	3.8	1.8
Operation of cars, total.....	44.7	46.7
Superintendence of transportation.....	1.4	1.4
Wages of conductors.....	17.8	19.4
Wages of motormen.....	17.1	18.9
Wages of other car-service employees.....	2.0	1.7
Wages of car-house employees.....	2.5	2.2
Car-service supplies.....	0.7	0.8
Miscellaneous car-service expenses.....	1.7	1.1
Hired equipment.....	0.1	(¹)
Cleaning and sanding track.....	1.0	0.9
Removal of snow and ice.....	0.3	0.5
General, total.....	17.2	18.1
Salaries of general officers.....	1.1	1.2
Salaries of clerks.....	1.2	1.4
Printing and stationery.....	0.3	0.2
Miscellaneous office expenses.....	0.3	0.5
Stores expenses.....	0.3	0.2
Stable expenses.....	0.2	0.4
Advertising and attractions.....	0.1	0.6
Miscellaneous general expenses.....	1.2	1.6
Damages and legal expenses incident thereto.....	9.4	9.1
Other legal expenses.....	0.7	0.8
Rent of land and buildings.....	0.3	0.1
Rent of track and terminals.....	0.6	0.6
Insurance.....	1.4	1.6

¹ Not reported separately.

The total operating expenses of these 13 selected companies represented 26 per cent of the total reported for all companies in the United States in 1907 as compared with 30.8 per cent in 1902. In spite of this decrease in relative importance, the total expenses of these companies increased from \$43,850,067 in 1902 to \$65,447,071 in 1907, a total increase of \$21,597,004, or 49.3 per cent.

While the totals upon which the percentages were based are fairly representative of operating conditions in large urban centers, there are not so many striking differences when compared with the distribution for all companies as might be expected. Thus, as in the case of the country as a whole, each of the main accounts of operating expenses, except those included under the headings "Operation of cars" and "General" showed an increased proportion of the total in 1907 as compared with 1902. It will be noted, however, that proportionately the expenses for maintenance of ways and structures of the 13

selected companies were slightly less at both censuses than for all companies, and the expenses for operation of power plant considerably less, while expenses of maintenance of equipment and of operation of cars were relatively greater for the selected companies. In the larger cities the track, buildings, and appurtenances are usually of so substantial a character that the maintenance cost may be comparatively low, and the power plants are equipped with large units and the best labor-saving devices, productive of the highest economies of operation. On the other hand, the maintenance of equipment and the cost of car operation are proportionately greater in centers of heavy traffic. None of the 13 selected companies, however, was engaged in the regular light and power business.

Operating expenses of companies, classified according to income from railway operations.—Table 119 shows, for both censuses, the totals for the six divisions of operating expenses of companies, classified according to income from railway operations, with the percentages of increase, and Table 120 shows the per cent distribution of the totals.

As with the rates of increase in operating earnings, the rates of increase in total operating expenses and in each of the five main divisions are much greater for the larger companies, those belonging to Classes A and B, than for the other classes, or for all companies combined. Excluding from consideration the amounts reported as expended for wages and other expenses incident to electric-light service, which are more or less unstable quantities, the highest rate of gain, 134.3 per cent, appears for the expenses of maintenance of ways and structures for Class A, while the least change during the five years interval between the censuses is shown in the amount reported as expended for operation of cars for the small companies, Class E.

The largest companies, Class A, reported a larger proportion of the total operating expenses in 1907 than in 1902. The line below which the different classes of companies reported a smaller proportion of the totals for the several expense accounts in 1907 than in 1902 falls between Classes B and C; companies with an income of less than \$500,000 showing a more or less general falling off in their proportions of the totals in 1907.

The percentages in Table 120 show some variations in the relative importance of the different classes of expenses for the different classes of companies. The per cent ratio of the cost of maintaining ways and structures to total operating expenses was highest for companies of Class B; the ratio for cost of maintenance of equipment was highest in Class A; for cost of operation of power plant, in Class E; for cost of car operation, in Class A; for general expenses, in companies of Class C; and for the expenses incident to electric-light service, in Class D. In 1902 the highest

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percentages for cost of maintenance of equipment, operation of power plant, and operation of cars, were shown for the same classes as in 1907; but the cost of maintenance of ways and structures in 1902 was most

important relatively for the next lower class, C; general expenses, for the next lower class, D; and the expenses incident to electric-light service, for the next lower class, E.

TABLE 119.—OPERATING EXPENSES, BY ACCOUNTS, OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

ACCOUNT.	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of companies.....	1907	1939	73	50	40	182	551	8.1	5.3	8.5	19.4	58.7
Per cent of increase.....	1902	1799	44	28	53	112	562	3.5	3.5	6.6	14.0	70.3
		17.5	72.7	78.0	50.9	62.5	12.0					
Operating expenses, total.....	1907	\$251,309,252	\$173,359,511	\$22,278,981	\$19,065,080	\$20,341,738	\$10,264,942	69.0	8.9	7.0	8.1	4.5
Per cent of increase.....	1902	\$142,312,507	\$91,842,001	\$11,848,432	\$11,506,292	\$12,506,786	\$14,000,185	64.5	8.3	8.1	8.8	10.3
		78.6	88.6	88.0	65.7	62.6	11.3					
Maintenance of ways and structures.....	1907	\$25,075,327	\$17,541,395	\$2,445,614	\$2,046,741	\$2,063,864	\$1,587,673	68.3	9.5	8.0	8.0	6.2
Per cent of increase.....	1902	\$12,118,266	\$7,480,509	\$1,117,591	\$1,133,003	\$1,097,932	\$1,317,901	61.7	9.2	9.4	8.8	10.9
		111.9	134.3	118.8	80.5	93.3	20.6					
Maintenance of equipment.....	1907	\$31,485,810	\$22,830,833	\$2,656,703	\$2,146,708	\$2,226,310	\$1,625,196	72.5	8.4	8.8	7.1	5.2
Per cent of increase.....	1902	\$16,676,632	\$11,265,241	\$1,200,965	\$1,388,656	\$1,287,108	\$1,466,662	67.0	7.6	8.3	7.7	8.9
		88.8	102.7	109.2	54.6	73.0	10.9					
Operation of power plant.....	1907	\$43,972,699	\$27,191,722	\$4,237,254	\$3,737,324	\$4,437,294	\$4,269,075	61.8	9.6	8.5	10.1	9.9
Per cent of increase.....	1902	\$23,062,324	\$13,003,641	\$1,874,566	\$1,878,528	\$2,488,915	\$3,726,579	58.8	8.1	8.1	10.8	16.2
		90.7	107.7	128.0	98.9	78.3	17.2					
Operation of cars.....	1907	\$100,542,108	\$73,216,176	\$8,052,800	\$6,775,982	\$6,771,627	\$5,125,523	72.8	8.6	6.7	6.7	5.1
Per cent of increase.....	1902	\$62,454,679	\$42,004,070	\$5,199,063	\$4,729,221	\$4,867,128	\$4,986,197	68.3	8.3	7.6	7.8	8.0
		61.0	71.6	68.4	43.3	39.1	2.6					
General.....	1907	\$43,464,465	\$29,803,732	\$3,833,807	\$3,510,622	\$3,451,905	\$2,804,400	68.0	8.8	8.1	7.9	6.6
Per cent of increase.....	1902	\$25,812,009	\$16,740,420	\$2,154,244	\$2,030,369	\$2,337,317	\$2,548,599	64.9	8.3	7.9	9.1	9.9
		68.4	78.0	78.0	72.9	47.7	12.3					
Wages, supplies, and expenses incident to electric service not elsewhere included.....	1907	\$6,108,673	\$3,784,650	\$452,803	\$447,603	\$1,350,748	\$693,066	45.1	7.3	13.7	22.5	11.2
Per cent of increase.....	1902	\$2,188,753	\$597,720	\$232,903	\$345,685	\$438,356	\$554,080	27.3	10.6	15.8	20.9	25.4
		181.4	365.9	94.4	145.2	203.4	25.1					

¹ Exclusive of 6 companies which failed to furnish this information.
² Exclusive of 18 companies which failed to furnish this information.
³ Decrease.

TABLE 120.—Per cent distribution, by accounts, of operating expenses of companies, classified according to income from railway operations: 1907 and 1902.

ACCOUNT.	Census.	PER CENT OF OPERATING EXPENSES.					
		Total	A	B	C	D	E
Operating expenses.....	1907	100.0	100.0	100.0	100.0	100.0	100.0
	1902	100.0	100.0	100.0	100.0	100.0	100.0
Maintenance of ways and structures.....	1907	10.2	10.1	11.0	10.7	10.1	9.8
	1902	8.5	8.1	9.4	9.9	8.5	9.0
Maintenance of equipment.....	1907	12.5	13.2	11.9	11.3	10.9	10.0
	1902	11.7	12.3	10.7	12.1	10.3	10.0
Operation of power plant.....	1907	17.5	15.7	19.0	19.0	21.8	26.9
	1902	16.2	14.3	15.8	16.3	19.9	25.5
Operation of cars.....	1907	40.9	42.2	38.8	35.5	33.3	31.5
	1902	43.9	46.5	43.9	41.1	38.9	34.2
General.....	1907	17.3	17.2	17.2	18.4	17.0	17.6
	1902	18.1	18.2	18.2	17.0	18.7	17.5
Wages, supplies, and expenses incident to electric service not elsewhere included.....	1907	2.5	1.6	2.0	4.4	6.8	4.3
	1902	1.5	0.7	2.0	3.0	3.7	3.8

For the two important items of expense included under the heads "Operation of power plant" and "Operation of cars," and for these two only, the percentages at both censuses were uniformly progressive

from class to class. For the former, the gradation is from a low proportion of the total, 15.7 per cent for the companies belonging to Class A, to a high proportion of the total, 26.9 per cent for Class E; while the expense of operation of cars increases progressively in relative importance from Class E, where it represented only 31.5 per cent of the total, to Class A, for which it constituted 42.2 per cent. That is to say, in general, as the size of the company increases, the proportionate cost of power-plant operation decreases, and the proportionate cost of operation of cars increases. This is a further confirmation of the statement made in connection with similar statistics for the 13 selected companies in the largest cities, namely, that the larger cities and companies have attained greater economies in power costs and that the cost of car operation is proportionately higher for the larger companies.

Operating expenses of companies with and without commercial lighting and of part-time companies.—A grouping of the operating expenses of companies "without commercial lighting," "with commercial lighting," and "part-time," respectively, is given in Table 121.

TABLE 121.—OPERATING EXPENSES, BY ACCOUNTS, OF COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

ACCOUNT.	TOTAL, ALL COMPANIES.		CLASSIFICATION GROUP.									
			Without commercial lighting. ¹		With commercial lighting.		Part-time.		Per cent of increase.			
	1907	1902	1907	1902	1907	1902	1907	1902	Total.	With-out lighting.	With lighting.	Part-time.
Number of companies.....	2 939	2 799	700	630	4 175	112	55	57	17.5	12.5	50.3	23.5
Operating expenses, total.....	\$251,309,232	\$142,312,597	\$38,817,845	\$128,038,482	\$11,566,582	\$12,834,911	\$94,825	\$1,439,174	76.6	63.1	223.9	27.6
Maintenance of ways and structures.....	26,675,827	12,118,206	21,727,462	10,575,702	3,882,880	1,035,566	64,955	107,028	111.9	98.0	275.0	39.3
Maintenance of equipment.....	31,085,810	16,676,532	27,251,006	15,117,574	4,157,005	1,115,583	73,599	143,375	88.8	76.8	272.7	48.7
Operation of power plant.....	43,972,069	23,062,328	35,983,397	20,248,515	7,708,884	2,487,822	280,388	325,991	90.7	77.7	209.9	14.0
Operation of cars.....	100,542,108	62,454,679	87,135,067	57,834,756	13,108,276	4,946,630	298,765	534,287	61.0	50.6	222.3	44.1
General.....	43,464,805	25,812,009	36,634,776	23,685,153	6,653,922	2,018,893	175,767	307,953	68.4	56.0	229.6	42.9
Wages, supplies, and expenses incident to electric service not elsewhere included.....	6,168,873	2,188,753	112,537	57,782	6,055,015	2,110,441	1,321	20,530	181.8	94.8	186.9	93.6

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.² Exclusive of 9 companies which failed to furnish this information.³ Exclusive of 18 companies which failed to furnish this information.⁴ Exclusive of 2 part-time companies.⁵ Decrease.

The large percentages of increase shown for the operating expenses of companies that had electric-light departments confirm the statistics given in other tables in showing the rapid development of this branch of the electric-railway industry. In 1902 the operating expenses of companies without lighting plants were nearly nine times as great as those of the other companies, but in 1907 they were only about five times as great.

The rate of increase for each of the main accounts of operating expenses is about three to four times as great for companies with lighting plants as for those without, but as companies with lighting plants contributed considerably less than one-fifth of the totals for all companies, the rate of increase for companies without commercial lighting is not very much less than that for the United States as a whole. The uniform decrease in the amounts reported for the part-time companies is in keeping with the decrease reported in the operating earnings of such companies.

The percentage ratios of the operating earnings and operating expenses of each of the three groups of com-

panies to the respective totals for all companies at the two censuses are shown in the following statement:

CLASSIFICATION GROUP.	PER CENT DISTRIBUTION OF—			
	Operating earnings.		Operating expenses.	
	1907	1902	1907	1902
Total, all companies.....	100.0	100.0	100.0	100.0
Without commercial lighting.....	83.2	90.1	83.1	90.0
With commercial lighting.....	16.8	9.9	16.9	9.0
Part-time companies.....	0.3	1.0	0.4	1.0

The close correspondence in the proportion of operating earnings and of operating expenses, respectively, reported by the different groups of companies at the two censuses is striking.

A clearer understanding of the relative importance of the different kinds of operating expenses for the different groups of companies is afforded by Table 122, which distributes the expenses by percentage, instead of by absolute amounts.

TABLE 122. PER CENT DISTRIBUTION, BY ACCOUNTS, OF OPERATING EXPENSES OF COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

ACCOUNT.	PER CENT OF OPERATING EXPENSES.							
	Total, all companies.		Without commercial lighting.		With commercial lighting.		Part-time.	
	1907	1902	1907	1902	1907	1902	1907	1902
Operating expenses.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Maintenance of ways and structures.....	10.2	8.5	10.4	8.6	9.3	8.1	7.3	7.4
Maintenance of equipment.....	12.5	11.7	13.0	12.0	10.0	8.7	8.2	10.0
Operation of power plant.....	17.5	16.2	17.2	15.8	18.5	19.4	31.3	22.7
Operation of cars.....	40.0	43.9	41.7	45.2	31.5	31.7	33.4	37.1
General.....	17.3	18.1	17.5	18.3	16.0	13.7	19.6	21.4
Wages, supplies, and expenses incident to electric service, not elsewhere included.....	2.5	1.5	0.1	(¹)	14.6	16.4	0.1	1.4

¹ Less than one-tenth of 1 per cent.

The cost of generating power is, relatively, a somewhat more important item of expense for companies that sell a large part of their output of current for commercial light and power purposes than for companies engaged primarily in the operation of railways. The proportion of operating expenses reported under this head by companies with commercial lighting was not, however, quite so high in 1907 (18.5 per cent) as in 1902, when it approached one-fifth of the total expenses. On the other hand, the expense of car operation is much greater, relatively, for companies without commercial lighting than for those with commercial lighting, the percentage of the total operating expenses assignable to this account ranging 10.2 and 13.5 per cent higher for the former class of companies

in 1907 and 1902, respectively, than for the companies with commercial lighting.

The decrease shown for companies with commercial lighting in the relative importance of wages and other expenses incident to electric-light service, is without significance, as there was a lack of uniformity among the companies reporting to the Census Bureau in regard to the distribution of their expenses between the railway and the light departments.

Operating expenses of companies, classified according to kind of system and character of service.—Some interest attaches to a presentation of the operating expenses and their percentage distribution for companies, classified according to kind of system and character of service.

TABLE 123.—OPERATING EXPENSES, BY ACCOUNTS, OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

ACCOUNT.	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected inter-urban lines.	Selected small urban roads.	All other railways.
Number of companies.....	499	6	933	50	100	799
Operating expenses, total.....	\$251,309,252	\$15,129,025	\$236,180,227	\$16,000,292	\$1,135,442	\$233,273,518
Maintenance of ways and structures.....	25,675,327	1,325,861	24,149,464	1,898,959	124,067	23,692,271
Maintenance of equipment.....	31,485,810	2,274,437	29,211,373	1,047,243	116,319	29,422,248
Operation of power plant.....	43,972,669	3,310,295	40,662,433	3,834,850	298,345	39,839,474
Operation of cars.....	109,542,168	5,818,688	94,721,470	5,821,824	431,017	94,289,267
General.....	43,464,465	2,199,851	41,264,614	3,053,248	165,604	40,245,553
Wages, supplies, and expenses incident to electric service, not elsewhere included.....	6,168,873		6,168,873	354,168		5,814,705

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Exclusive of 6 companies which failed to furnish this information.

TABLE 124.—Per cent distribution, by accounts, of operating expenses of companies, classified according to kind of system and character of service: 1907.

ACCOUNT.	PER CENT OF OPERATING EXPENSES.					
	Total, all companies.	Kind of system.		Character of service.		
		Electric elevated and subway railways.	Electric surface railways.	Selected inter-urban lines.	Selected small urban roads.	All other railways.
Operating expenses.....	100.0	100.0	100.0	100.0	100.0	100.0
Maintenance of ways and structures.....	10.2	10.1	10.2	11.2	10.9	10.1
Maintenance of equipment.....	12.5	15.0	12.4	11.5	10.2	12.6
Operation of power plant.....	17.5	21.9	17.2	22.7	26.3	17.1
Operation of cars.....	40.0	38.5	40.1	34.4	8.0	40.4
General.....	17.3	14.5	17.5	18.1	14.6	17.3
Wages, supplies, and expenses incident to electric service, not elsewhere included.....	2.5		2.6	2.1		2.5

The total operating expenses are distributed among the several classes of companies in about the same proportion as the operating earnings, and the statistics on this point do not call for special comment.

Table 124 shows that the relative importance of each expense account is practically the same for each group of companies as for all companies combined, there being variations in this respect in only one or two cases.

The operating conditions of elevated and subway railways, interurban lines, and small urban roads are very dissimilar, and the per cent distribution of the operating expenses by accounts indicates several points of difference. The cost of keeping the car equipment in operating condition was proportionately greater for the elevated railways and subways than for the selected interurban lines, as was also the cost of operating cars. The costs of operation of the power plant and of the maintenance of ways and structures were proportionately greater for the selected inter-

urban lines than for the elevated and subway systems. The cost of producing power was much higher in proportion for the selected small urban roads than for either the elevated and subway or the selected inter-urban lines.

Operating expenses, by states.—A detailed statement

of the operating expenses reported by the street and electric railways of the different states and territories and geographic divisions for 1907 and 1902, is presented in Table 125, which shows the total amounts reported for each of the 39 accounts included in the standard classification of operating expense accounts.

STREET AND ELECTRIC RAILWAYS.

TABLE 125.—OPERATING EXPENSES, BY ACCOUNTS, BY

1	2	STATE OR TERRITORY.	Census.	Number of companies.	Aggregate.	MAINTENANCE.							
						Ways and structures.				Equipment.			
						Total.	Track and roadway.	Electric, cable, etc., lines.	Buildings and fixtures.	Total.	Steam plant.	Electric, cable, etc., plant.	Cars.
1	2	United States.....	1907	¹ 939	\$251,309,252	\$25,675,327	\$18,978,515	\$4,777,607	\$1,919,115	\$31,485,510	\$2,652,364	\$1,181,653	\$13,814,206
3	4	North Atlantic division.....	1907	² 769	142,312,597	12,118,296	8,158,631	2,959,182	1,000,483	16,076,532	1,453,789	826,604	7,650,428
5	6	Maine.....	1907	365	118,309,563	11,974,123	8,716,231	2,241,406	1,016,496	15,170,689	1,337,186	495,759	6,326,087
7	8	New Hampshire.....	1907	356	76,504,699	6,592,416	4,445,018	1,458,104	656,294	9,012,974	688,430	226,315	4,135,526
9	10	Vermont.....	1907	17	1,480,544	142,304	96,067	36,100	10,087	176,594	17,809	13,798	72,169
11	12	Massachusetts.....	1907	19	1,127,660	144,800	96,232	21,287	27,341	157,765	6,203	7,263	77,336
13	14	Rhode Island.....	1907	16	885,892	105,845	85,277	14,592	6,976	91,367	699	285	43,372
15	16	Connecticut.....	1907	7	478,840	35,199	24,990	7,706	2,411	49,540	842	198	21,390
17	18	New York.....	1907	10	313,845	45,431	38,404	4,265	3,742	37,516	1,609	1,211	12,418
19	20	New Jersey.....	1907	9	201,179	26,183	20,100	3,254	2,829	20,765	304	806	7,916
21	22	Pennsylvania.....	1907	62	21,179,642	2,095,028	1,453,005	455,307	186,116	2,685,026	349,603	59,675	1,082,519
23	24	South Atlantic division.....	1907	74	16,493,067	1,513,632	991,972	382,098	139,702	1,595,793	170,050	43,056	964,128
25	26	Delaware.....	1907	5	2,744,360	335,590	212,380	60,911	60,299	372,276	19,641	5,184	150,388
27	28	Maryland and District of Columbia.....	1907	7	1,892,477	282,185	220,484	50,907	10,794	214,981	27,501	11,820	93,842
29	30	Virginia.....	1907	8	4,857,793	736,080	551,330	145,653	42,107	526,097	31,946	16,900	253,082
31	32	West Virginia.....	1907	21	2,773,608	328,495	239,290	72,957	16,248	289,765	16,798	5,933	123,372
33	34	North Carolina.....	1907	101	50,928,855	4,799,075	3,437,146	824,297	537,632	7,068,741	588,180	265,835	2,761,125
35	36	South Carolina.....	1907	96	33,677,724	2,404,843	1,861,801	592,247	350,735	3,771,757	179,600	75,080	1,681,432
37	38	Georgia.....	1907	24	7,905,138	482,188	327,904	113,794	40,500	1,229,375	87,476	33,238	548,441
39	40	Florida.....	1907	25	4,324,112	270,285	184,007	63,588	22,680	576,440	31,694	22,525	236,151
41	42	North Central division.....	1907	122	26,003,748	3,229,672	2,514,118	586,477	129,077	2,983,007	239,903	99,633	1,402,573
43	44	Ohio.....	1907	96	15,024,813	1,551,534	1,206,082	263,968	83,484	2,037,248	265,447	58,374	927,909
45	46	Indiana.....	1907	100	16,280,864	1,487,530	1,080,155	319,459	77,916	1,631,473	164,580	67,505	783,399
47	48	Illinois.....	1907	75	8,198,047	498,682	365,619	132,079	42,384	849,231	57,255	30,401	576,031
49	50	Michigan.....	1907	4	516,253	42,858	31,517	9,681	1,270	61,571	7,894	5,745	22,594
51	52	Wisconsin.....	1907	3	360,580	11,657	7,036	4,317	304	33,080	2,196	3,175	9,994
53	54	Minnesota.....	1907	19	5,943,863	458,047	348,814	88,801	30,432	712,701	32,579	23,709	344,899
55	56	Iowa.....	1907	18	3,870,538	180,394	120,697	54,501	14,226	475,150	25,136	9,659	215,212
57	58	Missouri.....	1907	22	3,261,570	324,626	224,900	77,957	21,700	265,926	24,744	6,544	153,004
59	60	North and South Dakota.....	1907	16	1,009,356	94,090	57,431	23,036	11,503	98,804	9,606	10,280	42,950
61	62	Nebraska.....	1907	15	1,580,385	209,579	127,198	43,614	8,767	129,769	19,194	10,826	55,725
63	64	Kansas.....	1907	8	652,892	48,946	35,151	10,988	2,807	46,969	3,890	823	24,417
65	66	Montana.....	1907	11	743,357	48,099	33,630	9,382	5,087	56,874	8,237	2,614	24,661
67	68	Wyoming.....	1907	7	322,344	29,097	16,805	9,524	2,768	28,215	3,219	1,772	14,084
69	70	Idaho.....	1907	7	762,853	83,863	43,299	27,911	12,653	98,407	15,231	3,340	37,194
71	72	Utah.....	1907	12	398,692	23,926	14,080	4,994	4,973	35,435	3,302	1,026	16,083
73	74	Arizona.....	1907	7	2,555,713	210,660	154,350	50,250	6,060	206,733	43,862	12,148	79,480
75	76	California.....	1907	10	1,232,320	50,864	26,726	19,730	4,408	101,008	3,474	2,370	42,696
77	78	Nevada.....	1907	10	956,890	50,188	36,387	11,863	1,938	97,492	12,869	2,679	45,152
79	80	Alaska.....	1907	6	339,375	20,708	15,714	3,699	1,305	29,570	0,373	986	10,506
81	82	Alaska.....	1907	283	78,374,932	7,624,840	5,763,376	1,339,515	530,940	9,220,746	797,119	374,862	4,136,498
83	84	Alaska.....	1907	235	41,271,462	3,308,839	2,221,279	879,506	204,154	4,990,506	434,926	114,847	2,271,608
85	86	Alaska.....	1907	73	18,479,690	2,045,308	1,606,348	334,194	104,790	2,489,726	310,275	139,263	1,064,135
87	88	Alaska.....	1907	62	9,132,480	787,224	572,541	178,917	35,895	863,348	77,249	31,120	372,740
89	90	Alaska.....	1907	33	6,308,152	628,218	431,546	115,544	81,128	793,452	63,581	26,541	335,117
91	92	Alaska.....	1907	26	2,219,791	194,751	133,433	49,938	11,380	205,976	38,552	22,490	102,543
93	94	Alaska.....	1907	70	25,567,096	2,472,578	1,914,750	378,637	179,191	2,807,087	218,388	100,899	1,370,727
95	96	Alaska.....	1907	48	14,103,211	1,052,973	897,579	274,732	80,682	1,699,365	148,157	278,972	1,021,645
97	98	Alaska.....	1907	24	6,549,910	678,074	503,762	118,994	53,318	770,541	41,044	22,391	304,111
99	100	Alaska.....	1907	24	3,655,328	324,077	224,484	75,081	24,512	424,800	24,400	31,425	165,231
101	102	Alaska.....	1907	20	3,235,088	257,200	177,390	59,397	20,213	303,044	21,138	10,854	144,005
103	104	Alaska.....	1907	17	1,965,024	137,461	93,234	34,092	9,515	165,173	35,111	11,947	60,991
105	106	Alaska.....	1907	5	3,524,340	224,084	155,156	57,109	11,819	321,462	14,377	15,077	139,812
107	108	Alaska.....	1907	5	1,719,697	92,707	73,746	19,268	8,694	221,043	5,932	3,375	81,492
109	110	Alaska.....	1907	24	2,826,950	217,272	161,921	44,400	10,601	240,022	26,498	13,079	100,281
111	112	Alaska.....	1907	22	1,400,983	139,559	121,850	29,989	7,720	150,305	16,421	8,137	62,785
113	114	Alaska.....	1907	14	9,680,226	894,874	668,490	179,737	51,668	1,328,580	91,132	36,830	589,651
115	116	Alaska.....	1907	16	6,071,971	413,488	205,575	180,007	27,306	787,517	82,497	17,121	357,791
117	118	Alaska.....	1907	5	72,412	4,909	3,981	597	331	5,102	77	34	3,368
119	120	Alaska.....	1907	8	1,325,038	127,931	85,376	28,805	13,750	116,888	7,804	1,877	59,233
121	122	Alaska.....	1907	4	655,729	121,848	81,432	39,274	1,142	63,765	4,700	8,041	26,085
123	124	Alaska.....	1907	17	775,207	76,389	59,476	13,041	3,865	78,932	1,905	8,047	33,908
125	126	Alaska.....	1907	11	257,248	24,751	17,406	6,108	1,237	29,231	1,828	2,919	19,905

¹ Exclusive of 6 companies which failed to furnish this information.² Exclusive of 15 companies which failed to furnish this information.

FINANCIAL OPERATIONS.

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STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

MAINTENANCE—continued.			TRANSPORTATION.									
Equipment—Continued.			Operation of power plant.							Operation of cars.		
Electric, cable, etc., equipment of cars.	Miscellaneous.	Miscellaneous shop expenses.	Total.	Wages.	Fuel.	Water.	Lubricants and waste.	Miscellaneous supplies and expenses.	Power purchased.	Total.	Superintendence of transportation.	Wages of conductors.
\$10,753,321	\$886,724	\$2,197,432	\$43,972,069	\$7,870,355	\$21,038,259	\$1,091,293	\$975,885	\$928,029	\$12,342,258	\$100,542,106	\$3,545,418	\$37,514,021
5,325,125	698,875	842,711	23,062,328	4,590,487	12,827,322	634,026	500,147	624,608	3,871,514	62,454,679	2,568,536	24,070,921
5,330,310	440,038	1,141,309	19,757,907	3,022,301	9,735,743	634,373	301,037	475,970	4,988,513	48,482,356	1,799,718	17,890,510
3,022,080	483,351	446,693	11,762,092	2,049,511	6,460,338	421,054	229,148	363,421	2,239,530	34,577,483	1,793,320	12,969,714
58,797	4,431	9,539	307,076	66,499	136,657	45,530	4,164	6,408	47,768	573,993	17,947	188,496
60,429	1,960	8,534	200,531	52,744	84,798	27,501	4,347	6,278	24,863	377,503	18,059	141,941
37,735	1,980	7,295	213,171	14,280	22,028	1,003	737	3,384	171,739	277,558	16,232	101,295
18,572	1,304	6,250	134,413	21,144	38,348	1,349	1,611	1,584	70,377	162,911	7,549	67,679
15,273	4,546	2,199	67,087	10,903	10,889	5,544	635	5,792	33,324	105,009	6,961	35,765
9,312	1,579	728	41,449	3,969	10,003	.....	711	219	26,325	90,041	5,210	33,683
1,051,414	68,281	73,334	3,689,690	589,439	2,196,061	114,550	70,128	97,272	630,230	9,033,000	222,901	3,113,423
672,204	28,937	17,698	2,573,845	409,895	1,522,155	63,347	47,979	43,435	427,084	7,444,107	640,791	2,669,947
155,992	11,348	29,813	451,232	58,404	274,272	18,999	7,520	13,494	78,023	1,148,031	18,548	428,032
58,220	4,655	18,943	298,212	48,397	170,237	15,203	4,165	6,021	62,189	792,790	31,513	304,091
177,500	10,600	36,089	763,998	132,969	364,654	12,038	15,617	6,226	232,494	1,707,485	71,002	647,042
114,756	5,754	21,152	438,707	102,549	260,027	8,000	9,855	8,211	50,065	1,114,410	30,914	442,579
2,526,240	245,612	681,769	8,556,144	1,694,268	3,946,587	396,545	107,342	217,902	2,225,440	21,299,296	844,654	7,634,006
1,147,418	391,005	306,612	5,266,237	660,583	3,012,892	259,145	85,333	263,583	985,711	15,420,393	721,152	5,525,938
355,160	34,923	170,237	1,635,249	287,697	726,450	31,755	20,357	49,511	519,479	3,107,157	153,335	1,172,483
238,141	19,463	28,460	753,759	112,188	301,284	17,312	14,309	17,214	291,448	1,907,598	56,302	745,342
1,082,280	58,437	130,002	4,074,300	767,822	2,066,145	.....	74,537	75,871	1,062,016	11,239,027	348,058	4,546,408
707,767	29,570	38,260	2,066,549	579,052	1,060,520	29,197	19,603	16,872	310,288	7,267,220	281,830	3,071,514
436,310	96,521	103,188	2,059,854	572,242	1,619,051	45,284	52,959	94,283	676,035	5,773,400	218,180	2,173,518
331,037	16,569	37,908	1,546,103	312,990	907,092	33,001	36,163	17,014	239,307	3,206,794	110,322	1,277,245
11,534	8,522	5,312	130,122	23,385	94,807	1,004	4,434	2,495	1,797	197,174	7,289	87,069
13,916	1,319	4,490	84,804	13,384	61,800	1,527	3,297	310	2,686	124,871	1,680	60,000
195,904	51,319	64,291	1,155,016	226,067	693,996	24,871	16,505	59,857	133,720	2,590,623	92,591	1,002,673
204,887	1,405	18,851	744,439	130,204	411,600	12,032	10,037	5,728	174,018	1,756,938	47,395	726,858
65,498	3,077	12,309	604,360	75,806	181,082	9,780	10,996	7,134	319,472	1,003,332	39,451	340,959
32,971	1,250	1,687	243,083	49,800	144,727	6,721	7,180	3,473	31,176	319,064	17,734	114,322
35,835	4,185	4,004	296,751	78,286	147,096	4,430	8,077	12,102	48,760	544,766	11,426	212,580
15,783	2,279	1,478	97,029	36,655	47,276	2,672	3,055	1,439	6,032	278,888	4,892	110,890
16,682	3,455	1,225	170,665	33,328	118,850	3,217	4,406	1,557	9,307	173,891	10,971	67,497
7,939	701	500	78,996	16,959	48,399	1,588	2,964	700	8,380	79,180	4,288	20,088
20,732	21,062	848	185,399	35,901	113,634	403	2,800	6,108	26,453	214,442	16,453	66,868
7,351	6,640	433	55,630	7,619	32,019	290	1,027	429	14,262	135,242	16,906	37,931
58,603	3,328	11,112	371,724	64,042	177,339	400	2,429	907	126,547	763,970	22,325	297,288
40,386	2,805	9,877	170,635	41,571	113,619	8,086	7,628	3,784	2,147	400,160	9,451	158,480
31,522	1,373	3,967	143,817	33,357	92,247	1,119	3,012	4,123	9,979	265,200	17,664	98,585
7,404	200	102	65,281	14,798	47,432	175	1,161	1,151	.....	102,453	6,286	39,399
3,019,991	244,382	648,944	14,577,556	2,678,029	7,301,321	344,438	222,292	229,765	3,801,511	31,028,537	974,553	11,879,535
1,454,388	124,400	236,277	7,079,129	1,055,501	4,160,935	148,512	168,071	168,992	779,058	17,556,891	445,876	7,034,208
777,800	71,255	123,868	3,411,273	804,329	1,998,715	44,976	63,028	55,275	414,949	7,094,207	267,641	2,657,922
294,086	19,491	68,260	1,618,321	413,639	963,023	33,839	46,376	31,463	127,381	4,211,157	113,153	1,053,807
273,612	14,544	50,067	1,291,281	308,212	772,771	14,188	24,932	25,423	145,756	2,081,451	75,555	713,028
113,075	2,234	24,482	363,879	106,523	223,900	3,312	12,100	7,441	10,603	847,307	27,146	332,116
870,002	69,951	177,240	4,744,442	696,725	1,876,778	66,102	49,000	49,505	2,007,256	10,502,007	202,484	4,247,358
288,439	59,430	103,616	2,333,311	478,336	1,306,304	49,239	37,869	80,584	402,979	5,525,552	89,704	2,444,620
289,530	38,231	74,334	1,229,621	217,030	625,007	1,126	16,233	14,188	355,918	2,737,671	88,219	941,681
168,907	13,027	21,901	660,257	175,669	393,744	1,527	20,472	14,073	54,772	1,576,731	56,533	592,063
107,539	5,154	14,264	529,296	78,710	381,353	9,465	8,656	11,562	39,550	1,171,999	51,296	.....
46,120	8,394	2,610	380,939	72,092	261,830	2,527	7,280	14,884	32,316	716,787	34,850	269,298
103,531	7,188	41,477	698,440	93,176	319,056	152,234	2,147	7,771	20,105	1,507,475	95,701	575,301
125,793	1,850	21,801	203,989	46,538	99,792	2,023	6,507	7,005	133,790	21,498	21,498	209,127
69,385	10,972	20,707	601,440	116,219	270,190	4,655	11,883	9,184	199,807	1,025,099	32,654	359,648
47,020	8,581	13,361	293,226	74,084	187,345	4,432	8,362	5,496	13,567	513,727	15,192	177,629
468,655	23,730	118,982	1,799,902	294,982	856,062	46,307	24,467	19,735	308,089	3,684,328	126,225	1,587,680
240,680	10,753	58,695	970,997	242,391	643,115	47,332	26,959	7,560	3,050	2,713,951	80,849	1,109,345
1,090	273	260	16,788	1,890	3,060	5	120	25	11,688	33,390	331	12,122
35,299	2,100	10,585	206,558	31,985	138,391	3,099	5,550	2,539	25,215	614,512	22,526	246,497
24,164	115	.....	122,058	29,539	80,296	3,690	2,533	.....	.....	264,680	1,875	119,273
22,418	1,024	9,570	188,606	34,752	100,138	2,241	3,739	4,937	82,779	286,468	11,921	101,394
3,022	585	962	44,452	16,790	24,986	591	1,669	518	.....	102,482	5,080	27,020

¹ No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 125.—OPERATING EXPENSES, BY ACCOUNTS, BY STATES

STATE OR TERRITORY.	Census.	Number of companies.	Aggregate.	MAINTENANCE.							
				Ways and structures.				Equipment.			
				Total.	Track and roadway.	Electric, cable, etc., lines.	Buildings and fixtures.	Total.	Steam plant.	Electric, cable, etc., plant.	Cars.
64 South Central division.....	1907	90	\$14,887,271	\$1,400,780	\$1,075,224	\$256,387	\$78,175	\$1,564,535	\$203,594	\$59,904	\$714,448
65	1902	66	6,678,876	712,836	511,922	158,204	42,700	774,917	74,707	39,153	394,911
66 Kentucky.....	1907	13	2,925,497	391,690	328,154	45,635	17,871	266,893	40,583	5,736	118,063
67	1902	12	1,560,270	235,160	178,487	47,904	16,778	145,385	15,916	3,713	84,647
68 Tennessee.....	1907	9	2,434,232	119,232	79,155	32,067	8,010	241,220	19,880	5,319	116,578
69	1902	8	1,079,237	90,734	71,906	15,984	8,754	126,352	2,620	2,561	71,416
70 Alabama.....	1907	10	2,276,100	218,843	158,007	47,263	13,483	237,241	37,965	12,013	103,042
71	1902	9	878,291	71,473	57,864	11,218	2,391	114,402	4,828	5,845	60,243
72 Mississippi.....	1907	8	534,542	64,971	29,294	28,233	7,354	57,040	7,305	4,918	37,157
73	1902	5	102,056	16,467	10,763	5,175	539	14,857	2,013	1,356	7,525
74 Louisiana.....	1907	11	2,682,481	254,894	195,988	48,724	10,182	380,784	50,242	11,113	159,812
75	1902	8	1,738,989	162,924	100,511	55,444	6,969	244,121	40,400	22,765	101,327
76 Arkansas.....	1907	8	681,262	34,076	28,116	4,004	1,926	62,403	3,451	574	33,642
77	1902	7	216,433	18,959	16,214	1,569	1,156	19,405	3,432	249	9,873
78 Oklahoma ¹	1907	8	357,917	37,241	30,395	6,201	645	35,756	3,144	2,979	13,306
79 Texas.....	1907	23	3,063,220	288,940	226,035	44,210	18,704	293,192	41,524	17,252	132,248
80	1902	17	953,000	111,110	84,057	23,800	6,163	110,385	5,489	2,662	59,880
81 Western division.....	1907	91	25,456,022	3,179,059	2,353,539	629,930	215,598	3,898,367	149,905	180,623	1,870,894
82	1902	67	9,672,123	1,008,523	698,823	339,680	51,011	1,042,904	88,462	113,888	481,332
83 Montana.....	1907	5	551,933	49,964	41,119	7,958	887	55,058	.....	212	35,882
84	1902	5	365,073	39,107	33,873	2,500	2,725	28,317	328	.....	14,522
85 Colorado.....	1907	11	2,009,421	173,545	125,304	34,267	13,974	258,731	12,175	5,665	121,052
86	1902	7	1,300,606	187,192	119,560	60,747	6,885	128,618	14,412	8,442	59,333
87 Washington.....	1907	14	5,140,501	450,447	356,288	77,456	22,693	505,373	23,347	33,767	262,197
88	1902	8	1,576,018	186,485	143,561	29,007	13,827	135,767	16,970	12,639	50,272
89 Oregon.....	1907	8	1,638,271	170,847	122,144	38,968	9,715	201,920	.....	.....	95,474
90	1902	6	653,912	69,923	51,680	12,007	6,236	86,496	5,218	7,177	42,225
91 California.....	1907	41	14,578,367	2,061,321	1,541,767	369,533	156,021	2,647,681	110,596	135,413	1,271,600
92	1902	35	5,402,245	530,602	292,041	219,005	19,556	621,653	49,956	86,183	291,909
93 All other Western states and territories. ²	1907	12	1,448,129	260,504	146,808	107,728	12,308	188,604	3,785	8,778	87,399
94	1902	6	374,269	55,214	46,106	7,324	1,782	62,063	1,560	1,235	14,191
95 Hawaii and Porto Rico ³	1907	4	418,432	18,850	11,028	6,779	1,043	34,513	4,738	634	15,294
96	1902	5	330,350	20,790	15,507	2,126	3,076	27,677	1,556	330	13,434

¹ No company reported in 1902.² Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.

FINANCIAL OPERATIONS.

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AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

MAINTENANCE—Continued.			TRANSPORTATION.									
Equipment—continued.			Operation of power plant.							Operation of cars.		
Electric, cable, etc., equipment of cars.	Miscellaneous.	Miscellaneous shop expenses.	Total.	Wages.	Fuel.	Water.	Lubricants and waste.	Miscellaneous supplies and expenses.	Power purchased.	Total.	Superintendence of transportation.	Wages of conductors.
\$474,701 217,852	\$23,504 11,796	\$88,394 36,408	\$2,685,546 1,052,202	\$471,943 229,403	\$1,596,001 543,043	\$37,072 19,625	\$63,851 42,790	\$90,545 45,340	\$461,536 175,661	\$5,274,369 2,700,271	\$236,677 133,054	\$2,029,925 881,385
90,921 32,570	913 1,492	10,077 7,047	378,186 184,704	93,432 46,165	308,411 100,244	13,091 4,902	13,067 6,760	9,123 13,547	40,464 12,146	1,191,699 653,671	65,294 58,187	427,045 99,084
75,881 38,133	3,381 1,229	20,187 10,393	434,437 163,842	73,377 21,750	264,673 72,189	2,405 3,315	12,533 4,081	8,083 1,878	73,066 60,620	886,111 408,102	44,190 25,700	333,748 164,145
52,154 36,702	5,667 3,436	16,400 3,298	403,460 114,063	64,613 23,074	250,099 67,084	8,510 4,140	6,132 3,233	13,803 1,479	60,332 14,453	642,840 300,598	37,877 20,273	231,000 103,877
7,415 3,111	31 661	314 189	186,906 61,946	44,656 14,073	129,940 39,643	4,729 2,441	4,839 2,659	2,751 1,611	..... 1,618	131,268 40,765	7,233 1,395	48,216 15,229
140,369 66,198	5,355 3,414	12,863 10,008	486,384 295,083	71,173 76,026	347,620 172,626	900 511	17,146 20,607	15,212 23,313	34,273 2,000	1,130,513 831,936	32,290 10,610	472,067 139,178
18,397 5,290	1,415 105	5,124 436	113,805 55,129	26,820 15,347	61,695 26,914	2,109 2,183	1,958 2,075	4,063 162	17,070 8,548	214,656 87,830	13,907 2,551	70,715 21,903
12,957	706	1,004	87,434	6,771	15,731	158	662	623	63,499	141,607	3,123	54,996
75,377 35,788	5,976 1,450	20,615 5,117	604,905 177,436	91,101 30,359	320,232 63,843	4,960 1,133	8,923 3,375	6,847 3,450	172,842 75,276	1,025,695 376,369	32,803 16,338	391,228 129,006
1,300,009 299,168	82,309 32,669	215,627 25,365	3,881,774 1,022,832	531,840 354,586	803,343 755,914	30,116 12,834	33,746 26,265	68,066 34,271	2,414,063 438,962	9,963,446 4,413,290	316,290 118,363	3,865,133 1,881,300
12,723 11,340	112 710	6,341 1,196	58,182 58,983	194 12,053	10,282	1,363	797	22 1,098	57,966 24,290	228,451 140,186	1,095 600	97,602 57,842
95,629 36,532	1,644 1,875	22,566 5,004	354,025 240,298	93,162 73,144	196,883 136,386	3,594 3,509	8,785 3,620	5,183 1,925	44,418 21,514	877,614 531,546	25,479 16,032	364,801 224,802
168,726 37,102	11,909 6,396	46,427 3,389	595,131 274,062	98,158 48,898	130,040 141,364	6,609 3,374	4,123 3,589	6,680 9,491	349,612 67,956	1,903,992 515,418	55,379 9,990	720,646 222,103
73,046 30,400	22,268 1,413	11,132 53	169,846 108,877	637 29,980	25,022	12	20 3,430	20 1,242	169,169 49,191	616,351 293,011	10,452 9,405	337,162 126,473
972,546 157,046	42,529 21,461	114,706 15,196	2,389,963 878,716	302,472 196,522	446,931 428,453	19,042 4,386	19,757 14,162	29,284 20,461	1,572,207 224,750	5,711,190 2,762,256	199,203 73,246	2,154,162 1,151,890
70,339 23,717	3,849 824	14,435 527	314,907 61,296	37,217 3,909	27,489 5,407	971 188	1,061 477	26,868 64	220,991 51,161	447,648 170,857	24,082 7,100	190,670 68,146
11,027 9,385	1,120 1,586	1,790 1,386	78,958 55,227	14,202 10,617	39,084 37,829	2,067 1,013	1,816 1,097	1,729 571	..... 4,300	142,821 110,797	7,293 3,980	58,411 23,238

* Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

STREET AND ELECTRIC RAILWAYS.

TABLE 125.—OPERATING EXPENSES, BY ACCOUNTS, BY STATES

STATE OR TERRITORY.		TRANSPORTATION—Continued.									GENERAL.		
		Operation of cars—Continued								Total.	Salaries of general officers.		
		Census.	Wages of motormen.	Wages of other car-service employees.	Wages of car-house employees.	Car-service supplies.	Miscellaneous car-service expenses.	Hired equipment.	Cleaning and sanding track.			Removal of snow and ice.	
1	2	United States.....	1907	\$37,021,885	\$5,056,964	\$6,716,370	\$2,157,024	\$4,827,399	\$573,829	\$1,888,567	\$957,031	\$43,464,465	\$4,837,909
2			1902	24,602,872	2,595,632	3,214,406	1,005,155	1,924,599		730,981	730,959	25,812,009	2,863,123
3	4	North Atlantic division.....	1907	17,158,415	2,888,449	3,501,427	758,874	2,420,586	290,940	994,859	802,466	19,958,912	1,770,505
5	6	Maine.....	1907	13,328,340	1,632,108	1,581,770	1,192,106	1,064,225		331,197	657,703	14,119,869	1,217,234
7	8	New Hampshire.....	1907	191,256	14,422	38,607	8,004	46,517	7,880	11,088	49,076	238,779	45,342
9	10	Vermont.....	1907	142,135	10,760	16,930	4,403	27,594	2,290	13,460	197,793	197,793	22,908
11	12	Massachusetts.....	1907	101,428	10,501	16,079	7,012	8,648	1,116	8,202	7,025	203,990	21,266
13	14	Rhode Island.....	1907	67,630	3,645	7,197	2,736	963		180	5,332	95,290	9,088
15	16	Connecticut.....	1907	35,247	5,742	9,423	2,190	5,266	1,079	586	2,810	57,742	16,298
17	18	New York.....	1907	34,109	5,049	6,106	1,812	2,158		230	2,284	22,301	6,046
19	20	New Jersey.....	1907	3,234,466	659,377	585,698	119,665	478,990	92,447	194,930	231,997	3,621,930	347,960
21	22	Pennsylvania.....	1907	2,711,885	372,423	419,198	55,799	269,990		95,241	197,523	2,933,327	266,635
23	24	South Atlantic division.....	1907	438,928	56,926	103,532	15,058	47,102	2,797	25,069	13,509	436,903	32,257
25	26	Delaware.....	1907	300,305	21,438	69,672	22,770	11,456		16,037	16,518	306,309	25,777
27	28	Maryland and District of Columbia.....	1907	600,308	33,903	100,236	31,141	65,774	9,899	47,635	39,635	600,634	61,130
29	30	Virginia.....	1907	442,425	32,096	57,614	16,067	29,186		28,004	34,925	419,587	127,904
31	32	West Virginia.....	1907	6,802,131	1,741,533	1,835,219	312,227	1,344,647	120,826	320,268	333,756	8,963,984	674,378
33	34	North Carolina.....	1907	5,796,923	1,001,318	619,944	878,777	536,546		72,820	230,285	6,832,892	428,461
35	36	South Carolina.....	1907	1,199,119	85,759	180,649	61,657	130,066	2,163	67,924	54,392	1,448,934	135,987
37	38	Georgia.....	1907	753,760	108,066	95,767	89,409	48,562		12,759	16,762	804,331	107,036
39	40	Florida.....	1907	4,495,332	280,337	632,474	201,720	293,506	52,733	317,981	70,078	4,996,016	435,907
41	42	North Central division.....	1907	3,080,650	76,240	290,284	145,273	97,900		103,546	120,614	2,707,610	223,299
43	44	Ohio.....	1907	2,233,644	244,437	290,999	107,658	260,094	111,349	79,849	20,472	2,722,624	275,266
45	46	Indiana.....	1907	1,301,308	121,707	153,386	77,268	125,760		31,003	8,162	1,509,373	260,940
47	48	Illinois.....	1907	87,144	3,847	5,076	3,982	395		503	1,809	84,918	12,056
49	50	Michigan.....	1907	60,080	4,934	3,973	1,450	882		301	1,431	94,178	6,400
51	52	Wisconsin.....	1907	1,032,062	103,863	108,284	14,675	119,263	48,990	26,565	11,007	1,027,476	144,998
53	54	Minnesota.....	1907	732,196	65,452	77,365	41,767	46,985		14,444	4,464	697,712	89,949
55	56	Iowa.....	1907	342,562	61,980	48,153	51,509	49,063	61,622	7,380	247	405,320	98,738
57	58	Missouri.....	1907	114,336	16,749	15,594	15,184	22,739		1,906	310	204,561	42,152
59	60	North and South Dakota.....	1907	211,345	13,412	42,173	10,840	23,534	97	6,554	6,807	234,540	48,011
61	62	Kansas.....	1907	118,573	4,037	7,034	4,011	23,790		2,422	1,529	106,707	36,284
63	64	Delaware.....	1907	68,463	9,576	5,338	3,547	5,820		2,579		138,325	26,008
65	66	Maryland and District of Columbia.....	1907	20,762	6,619	3,023	4,396	000		1,004	400	57,135	14,275
67	68	Virginia.....	1907	67,527	6,565	9,607	4,604	38,501		4,187	2	158,275	35,918
69	70	West Virginia.....	1907	38,277	4,956	11,154	2,722	20,003		2,365	28	68,416	17,200
71	72	North Carolina.....	1907	302,376	38,515	56,319	12,257	38,712		16,178		427,909	61,583
73	74	South Carolina.....	1907	170,243	17,304	24,162	5,320	8,449		8,671		218,135	46,222
75	76	Georgia.....	1907	102,345	6,543	16,049	6,154	11,176	840	5,843		155,861	47,292
77	78	Florida.....	1907	37,851	1,656	11,081	2,419	1,332		2,430		62,139	18,398
79	80	Ohio.....	1907	11,645,657	1,321,643	2,175,237	815,843	1,405,860	149,165	539,475	121,569	14,181,114	1,709,581
81	82	Indiana.....	1907	8,961,146	683,975	1,167,032	415,037	547,011		270,847	73,959	7,646,832	1,040,867
83	84	Illinois.....	1907	2,791,099	209,606	400,500	177,623	338,720	77,977	139,035	12,994	2,808,699	419,681
85	86	Michigan.....	1907	1,761,532	136,903	261,003	82,773	87,762		71,511	12,713	1,553,649	269,997
87	88	Wisconsin.....	1907	740,773	122,970	164,626	69,927	143,648	5,450	34,336	5,238	1,363,159	194,553
89	90	Minnesota.....	1907	354,174	9,725	56,123	21,357	18,884		13,572	4,210	408,474	93,060
91	92	Iowa.....	1907	3,796,296	506,978	692,922	257,816	492,797	50,817	228,265	54,304	4,970,832	450,399
93	94	Missouri.....	1907	2,094,870	302,081	353,302	147,441	263,683		102,580	27,271	2,819,259	237,985
95	96	North and South Dakota.....	1907	975,400	288,878	170,790	99,919	115,536	11,067	25,825	20,155	1,015,354	144,999
97	98	Kansas.....	1907	631,592	68,555	117,433	41,790	45,196		10,419	13,151	657,099	125,835
99	100	Delaware.....	1907	468,867	13,339	96,971	23,317	60,785	400	12,670	7,602	508,197	65,619
101	102	Maryland and District of Columbia.....	1907	310,662	4,437	46,474	11,600	27,492		10,517	2,681	307,023	53,591
103	104	Virginia.....	1907	592,890	31,631	141,070	57,681	67,659		23,054	12,188	739,708	102,232
105	106	West Virginia.....	1907	294,234	29,231	75,107	26,870	21,401		12,915	4,118	327,900	43,234
107	108	North Carolina.....	1907	383,903	62,400	93,535	22,630	51,027	685	15,646	2,871	518,011	95,298
109	110	South Carolina.....	1907	230,912	16,505	46,349	12,502	9,673		3,294	4,681	259,804	47,738
111	112	Georgia.....	1907	1,591,677	61,973	271,458	89,972	95,182	2,147	55,167	3,846	1,785,733	144,531
113	114	Florida.....	1907	1,100,274	61,838	183,094	60,425	71,065		43,451	2,969	1,179,839	136,140
115	116	Ohio.....	1907	13,097	1,407	2,757	792	926		1,014	913	12,253	3,520
117	118	Indiana.....	1907	256,597	2,932	34,427	11,820	29,525	237	9,196	755	259,139	51,230
119	120	Illinois.....	1907	119,696	11,567	5,134	4,955	168		527	1,402	83,372	17,007
121	122	Michigan.....	1907	117,068	19,449	16,181	5,356	9,755	375	4,294	703	140,569	37,020
123	124	Wisconsin.....	1907	53,381	2,943	4,413	5,324	1,669		2,062	673	50,963	16,590

¹ No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.

FINANCIAL OPERATIONS.

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AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

GENERAL continued.													Wages, supplies, and expenses incident to electric service, not elsewhere included.
Salaries of clerks.	Printing and stationery.	Miscellaneous office expenses.	Stores expenses.	Stable expenses.	Advertising and attractions.	Miscellaneous general expenses.	Damages and legal expenses incident thereto.	Other legal expenses.	Rent of land and buildings.	Rent of tracks and terminals.	Insurance.		
\$3,930,579 2,237,723	\$838,562 406,381	\$935,227 469,997	\$916,709 259,237	\$1,022,393 1,430,000	\$1,730,851 1,122,816	\$3,173,979 2,081,821	\$18,175,305 9,365,545	\$1,325,530 1,017,854	\$970,424 608,344	\$2,768,786 1,471,293	\$3,137,071 2,080,875	\$6,168,873 2,188,753	1 2
1,074,177 1,160,672	327,230 270,506	400,750 401,926	288,748 68,873	740,906 1,128,039	623,413 524,504	1,330,488 885,480	9,381,197 5,501,569	509,234 508,242	455,843 330,403	900,902 770,408	1,475,927 1,331,915	965,546 472,345	3 4
27,243 20,596	5,840 4,642	7,679 4,015	1,077	8,692 4,776	31,438 45,130	21,646 32,128	37,518 27,005	5,179 890	10,631 8,662	5,590 5,506	30,194 21,065	41,898 49,226	5 6
8,977 4,979	2,569 4,456	5,163 6,928	903 128	1,195 3,637	29,906 16,288	10,140 9,527	89,963 14,701	3,309 419	10,310 7,665	7,158 36	13,302 18,448	2,901 2,487	7 8
3,151 1,907	1,108 533	2,601 449	106	1,060 2,704	5,708 3,629	9,131 3,275	12,484 487	1,368 445	698 746	..... .....	3,940 1,923	..... .....	9 10
302,702 248,465	94,030 111,795	52,303 71,325	57,906 10,882	72,433 34,459	184,255 92,224	415,602 203,366	1,408,892 859,722	124,278 53,609	100,828 139,111	88,616 366,935	281,935 474,099	54,078 42,703	11 12
61,490 15,356	9,475 122	10,345 4,867	10,419	6,627 532	4,790 783	43,226 12,200	215,311 165,907	6,287 21,313	9,519 32,955	380	28,777 26,597	1,234	13 14
68,065 44,372	11,638 7,615	18,403 10,139	11,600 2,922	7,299 9,235	93,390 47,330	34,578 28,454	176,951 55,245	17,467 30,327	15,900 4,002	20,426 5,283	63,121 53,938	520,460 182,344	15 16
735,731 530,651	132,718 54,275	170,014 187,944	120,536 37,015	572,357 1,006,873	134,664 111,378	440,108 325,300	4,404,426 3,004,278	212,670 232,655	183,564 120,740	525,919 205,935	587,479 436,388	231,645 181,692	17 18
117,830 64,824	29,118 28,335	23,649 19,379	30,678 12,650	21,229 22,585	18,561 15,660	92,069 23,578	798,085 363,471	10,954 30,848	27,463 12,968	21,475 30,688	112,990 53,938	2,235 11,479	19 20
348,038 230,163	110,930 68,733	110,449 146,883	56,083 3,274	49,505 41,238	120,775 191,976	263,979 248,862	2,057,087 1,010,253	128,262 129,745	95,940 23,555	231,138 150,225	356,233 264,404	111,030 2,352	21 22
285,410 179,222	57,033 33,393	52,515 34,129	10,975 12,481	44,280 30,101	172,122 111,354	214,772 133,621	945,835 434,350	72,080 59,034	53,379 15,097	83,221 62,730	243,736 142,941	1,005,983 905,844	23 24
6,648 5,181	2,332 1,016	1,448 1,137	..... 100	1,073 898	9,525 12,412	2,690 3,863	37,856 20,472	74 253	78 99	..... 34,056	11,034 7,072	..... .....	25 26
146,999 98,730	26,469 16,272	11,080 13,889	4,891 4,464	29,390 21,247	22,064 12,119	65,657 67,615	335,091 264,298	30,506 23,504	18,466 2,375	8,730 7,806	121,866 73,314	..... 6,907	27 28
26,772 15,676	6,645 4,717	10,915 7,363	1,471 2,948	2,582 825	52,828 24,531	38,921 17,577	181,643 29,056	9,218 17,004	11,589 6,672	17,102 16,047	36,896 22,083	566,006 49,394	29 30
21,727 13,173	4,556 930	5,822 1,623	1,926	1,318 430	16,193 1,715	27,592 14,492	40,145 29,064	10,831 6,294	2,261 1,362	26,645	18,603 11,350	62,988 72,643	31 32
19,542 7,424	3,085 1,742	4,456 2,935	464 560	206 510	20,291 13,133	7,327 2,809	32,185 0,008	1,133 2,472	8,692 400	750 087	13,396 4,180	155,503 49,721	33 34
10,100 4,609	2,770 632	5,463 2,584	1,405 1,719	2,174 1,872	10,994 11,122	11,982 9,228	47,912 13,498	581 399	5,408 642	2,664	8,884 4,532	22,467 79,977	35 36
41,956 22,677	7,365 6,128	8,898 7,751	4,630 1,957	5,855 3,507	24,121 28,297	42,793 28,297	157,601 67,740	12,320 7,386	10,721 3,495	27,340 3,495	22,736 13,820	552,717 284,698	37 38
11,666 11,752	3,611 1,350	4,013 1,867	2,188 684	1,613 1,012	6,200 8,025	14,900 8,699	44,300 5,191	7,417 1,682	2,191 .....	..... .....	10,201 3,670	244,362 62,324	39 40
1,203,912 623,401	244,509 139,435	318,678 152,287	211,249 68,315	140,689 181,243	475,908 282,449	1,128,366 792,107	5,291,825 2,788,069	509,415 354,597	339,427 151,002	1,519,323 619,419	1,025,162 481,312	1,742,149 683,283	41 42
310,269 150,200	62,602 36,343	75,111 36,743	43,091 15,785	19,023 24,334	61,245 38,975	234,153 201,359	918,579 442,805	91,333 65,409	121,451 59,946	228,105 92,899	222,845 108,104	633,936 160,801	43 44
150,258 46,184	32,589 8,913	24,506 11,134	15,572 9,624	7,263 7,716	36,503 31,887	91,341 51,013	333,697 78,122	35,468 14,982	50,975 8,698	288,482 31,606	92,072 20,585	160,501 99,404	45 46
327,300 161,765	56,716 28,934	89,861 45,914	45,232 23,435	50,476 95,424	113,892 28,615	375,236 236,542	1,978,711 1,184,585	205,343 173,202	90,171 65,228	907,855 463,528	261,694 87,043	101,050 52,768	47 48
103,010 78,206	23,620 21,267	28,313 29,188	15,442 6,258	5,220 5,828	52,485 56,624	125,575 92,871	336,796 137,771	42,851 27,508	22,663 16,920	47,246 17,063	66,734 41,357	120,758 11,764	49 50
38,325 25,847	10,263 5,758	48,939 5,745	9,254 5,158	3,402 9,132	9,573 6,350	46,597 19,330	197,287 109,538	48,258 14,826	4,850 2,338	..... .....	50,791 49,411	425,362 277,611	51 52
55,320 30,986	13,353 6,429	11,934 4,971	43,690 10,188	6,702 4,644	38,852 6,195	89,567 56,710	244,555 124,896	58,195 8,750	1,268 4,265	1,005	58,909 20,082	43,168 20,797	53 54
59,243 24,734	11,773 7,765	11,798 4,032	8,005 3,081	6,960 5,750	54,145 40,183	47,978 35,368	108,100 47,519	13,552 9,405	25,169 6,925	29,780 6,005	48,230 20,869	224,225 78,372	55 56
113,502 85,021	20,527 16,517	22,750 12,829	26,329 14,798	20,661 24,704	36,129 50,227	94,670 97,304	1,038,093 810,784	62,849 37,218	7,784 5,454	4,458 7,617	187,740 72,038	28,809 26,379	57 58
1,754	337	126	18 .....	..... .....	624	791	1,967	438	688	550	1,460 .....	..... .....	59 60
19,447 7,728	2,097 4,587	1,615 401	2,765	3,159 1,205	13,927	16,022 9,109	112,901 32,540	6,332 2,400	2,055	11,585	12,904 8,335	..... .....	61 62
15,842 3,630	3,022 1,593	3,505 740	1,221	3,373 4,511	16,023 3,454	12,210 2,400	26,176 12,600	4,806 560	3,393 858	..... 100	11,780 3,289	4,250 6,279	63

STREET AND ELECTRIC RAILWAYS.

TABLE 125.—OPERATING EXPENSES, BY ACCOUNTS, BY STATES

	STATE OR TERRITORY.	Census	TRANSPORTATION—continued.								GENERAL.	
			Operation of cars—Continued.								Total.	Salaries of general officers.
			Wages of motormen.	Wages of other car-service employees.	Wages of car-house employees.	Car-service supplies.	Miscellaneous car-service expenses.	Hired equipment.	Cleaning and sanding track.	Removal of snow and ice.		
64	South Central division.....	1907	\$2,120,185	\$97,564	\$328,478	\$102,796	\$235,520	\$1,208	\$101,346	\$688	\$2,883,906	\$385,231
65		1902	1,173,051	72,007	160,084	113,257	116,921		37,354	1,468	1,197,684	233,850
66	Kentucky.....	1907	446,622	8,771	54,465	10,930	70,006	607	15,294	536	622,945	52,435
67		1902	288,490	28,914	23,244	72,501	74,510		7,352	1,200	313,510	44,832
68	Tennessee.....	1907	344,672	19,724	73,198	23,001	29,082		18,286	121	407,492	46,714
69		1902	176,851	6,223	11,954	13,340	6,288		4,464	137	237,734	32,075
70	Alabama.....	1907	227,733	12,559	36,941	13,450	71,249	360	11,002	9	440,380	46,051
71		1902	112,639	7,439	32,738	8,268	8,293		5,071		124,105	24,701
72	Mississippi.....	1907	53,469	7,929	8,116	2,163	2,794	20	1,318		94,467	25,020
73		1902	17,351		3,727	1,185	758		1,120		49,362	12,969
74	Louisiana.....	1907	474,944	12,115	63,390	20,287	22,174		26,407		560,356	55,466
75		1902	351,206	18,880	63,900	9,569	20,017		11,459		431,128	53,567
76	Arkansas.....	1907	93,815	5,101	11,864	4,812	7,943	46	6,431	22	124,490	21,725
77		1902	44,175	1,188	14,667	1,700	982		639	3	53,555	9,099
78	Oklahoma ¹	1907	51,419	2,075	16,257	3,203	7,503	175	2,853		55,679	14,244
79	Texas.....	1907	425,491	29,288	64,217	18,854	44,707		19,097		678,957	123,578
80		1902	182,270	10,047	18,744	6,004	6,073		7,289	38	218,290	56,023
81	Western division.....	1907	3,863,804	504,730	423,229	331,853	452,389	21,156	173,036	11,834	5,177,849	497,206
82		1902	1,809,027	125,465	143,353	107,487	70,652		59,980	9,667	2,138,151	240,206
83	Montana.....	1907	100,283		9,745	6,342	3,753		6,103	838	117,950	21,228
84		1902	51,886	150	5,980	15,456	2,263		5,342	809	76,738	11,150
85	Colorado.....	1907	361,961	15,868	35,170	14,927	28,157	3,739	16,418	1,264	359,368	54,422
86		1902	231,261	3,888	16,624	12,332	15,079		9,672	1,798	268,680	38,813
87	Washington.....	1907	725,059	134,698	75,913	60,161	80,935	3,199	40,070	8,022	1,017,532	174,688
88		1902	222,087	10,308	24,308	3,434	15,849		7,459	4,860	311,290	50,775
89	Oregon.....	1907	335,801	26,778	35,290	22,700	35,197	300	12,446	207	379,307	35,173
90		1902	126,036	7,450	9,383	6,901	1,685		4,045	937	179,588	20,733
91	California.....	1907	2,148,676	324,817	247,280	240,795	286,660	13,060	96,678		3,055,956	182,838
92		1902	1,167,715	103,147	81,333	66,925	30,826		36,585	601	1,386,016	105,628
93	All other Western states and territories. ²	1907	192,024	2,819	19,822	6,919	7,657	831	1,521	1,503	190,576	28,940
94		1902	79,452	456	5,705	2,349	4,940		1,907	802	88,359	13,107
95	Hawaii and Porto Rico ¹	1907	58,619	1,370	3,625	6,071	3,700		3,702		75,406	20,155
96		1902	58,257	2,222	3,987	2,079	826		4,319		66,368	8,969

¹ No company reported in 1902.² Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.

FINANCIAL OPERATIONS.

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AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

GENERAL—continued.												Wages, supplies, and expenses incident to electric service, not elsewhere included.	
Salaries of clerks.	Printing and stationery.	Miscellaneous office expenses.	Stores expenses.	Stable expenses.	Advertising and attractions.	Miscellaneous general expenses.	Damages and legal expenses incident thereto.	Other legal expenses.	Rent of land and buildings.	Rent of tracks and terminals.	Insurance.		
\$231,664 89,492	\$44,348 29,205	\$35,888 30,922	\$30,944 30,862	\$57,282 45,176	\$180,404 60,694	\$307,758 101,784	\$1,245,134 308,836	\$60,087 49,453	\$39,091 73,815	\$167,682 8,896	\$159,653 74,703	\$1,050,067 240,906	64 65
31,583 15,914	5,413 8,838	8,056 9,041	4,914 20,036	19,382 4,088	15,273 14,344	38,869 84,324	292,710 70,460	10,356 13,507	3,650 3,355	114,906 6,000	25,198 18,181	64,092 27,771	66 67
41,216 14,673	8,321 4,716	10,855 3,180	8,870 1,758	5,334 6,631	23,386 4,010	47,084 18,849	255,865 68,368	15,125 12,421	5,331 60,501	..... .....	28,781 10,572	255,754 45,473	68 69
32,597 8,922	8,127 3,806	9,815 4,850	3,164 3,040	6,146 6,832	34,085 11,078	35,568 10,906	233,073 37,320	4,351 1,100	5,596 3,473	8,775 355	22,022 7,572	334,307 133,650	70 71
17,269 4,640	2,622 1,187	3,434 2,014	2,798	2,288 1,181	3,088 2,567	4,778 3,461	24,554 15,124	1,116 1,447	3,313 2,023	..... .....	4,187 2,759	..... 8,060	72 73
31,749 23,927	4,898 4,407	4,300 5,627	2,906 3,846	10,926 12,882	63,913 13,109	14,811 26,086	115,982 38,470	16,052 13,137	2,827 931	..... 820	35,466 23,300	69,530 3,797	74 75
16,276 5,502	2,189 620	3,587 510	677 617	3,144 3,838	16,902 569	14,206 5,636	34,062 3,303	1,000 508	909 202	..... .....	8,323 3,006	133,832 1,555	76 77
9,018	1,925	3,220	854	205	3,142	5,327	10,418	1,324	2,855	.....	3,537	.....	78
31,956 15,914	10,853 5,541	12,421 5,770	5,701 1,885	9,847 8,724	30,606 14,927	46,345 12,452	277,840 75,741	19,163 7,248	14,810 3,350	43,911 1,111	31,939 9,304	201,532	79 80
535,416 184,936	95,386 24,842	107,590 47,063	58,853 30,708	39,726 43,441	269,004 143,905	292,585 88,819	1,309,316 361,841	105,734 46,618	76,084 17,407	97,656 9,701	232,593 98,004	796,128 186,433	81 82
10,451 7,175	1,005 413	1,739 1,286	143 28	420 120	47,594 39,180	12,924 6,707	9,928 3,656	4,510 2,500	2,257 2,442	..... .....	5,751 2,214	44,328 21,740	83 84
61,066 30,189	6,902 3,682	9,128 5,594	13,407 5,645	3,042 3,419	23,293 22,959	53,732 20,962	88,120 44,897	6,680 5,092	22,645 5,340	866	16,475 12,388	76,138 4,270	85 86
90,836 25,086	19,801 1,859	20,730 9,352	8,704 3,275	943 288	23,765 22,957	62,801 25,565	448,471 106,081	30,691 18,410	14,056 5,815	67,420 1,389	28,465 21,479	621,026 152,396	87 88
62,508 14,910	169 4,099	18,502 5,028	.....	977 2,886	6,517 2,210	25,389 5,571	111,487 14,221	..... 5,391	438 1,810	..... 5,073	18,067 5,759	..... 8,027	89 90
258,308 94,947	46,022 12,053	49,450 26,143	36,040 21,763	33,940 22,986	160,229 35,547	122,727 26,578	613,515 183,476	52,836 14,045	32,061 2,160	29,550 2,299	135,602 51,481	15,086	91 92
52,257 2,620	15,435 2,746	7,961 1,465	559	404 3,790	7,906 982	15,022 3,440	37,795 16,640	11,017 1,360	5,228	120	8,223 4,683	20,570	93 94
11,035 14,008	2,827 1,861	2,175 344	1,296 903	4,076 54,142	4,748 3,018	8,980 3,225	8,806 3,023	3,682 1,983	3,193 624	..... .....	4,333 3,186	67,884 20,384	95 96

* Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

IV.

DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES).

In order to obtain a correct and comprehensive view of the financial results of operation for electric railways, an analysis of their aggregate deductions from income is necessary. The separation of deductions from income (sometimes termed "fixed charges") from operating expenses, for purposes of treatment in this report, simply follows the well-established and well-understood practice of accounting departments and accounting associations.

In some systems of accounting it is customary to regard and treat as fixed charges such payments as those for permanent improvements, and to include under the same head the salaries and maintenance of organization. In the standard form of accounting for electric railways used by the Census Bureau, however, the charge for permanent improvements is left as a later deduction from net income, while the salaries and maintenance of organization are included in operating expenses. The "deductions from income" appearing in the census tables will therefore be understood to cover taxes, interest, rent of leased lines, and miscellaneous deductions, the latter representing chiefly charges for depreciation and other special and minor payments.

An analysis of the deductions from income for all operating companies is presented in Table 126.

TABLE 126.—*Deductions from income (taxes and fixed charges), by accounts, of operating companies: 1907 and 1902.*

ACCOUNT.	1907		1902		Per cent of increase.
	Amount.	Per cent of total.	Amount.	Per cent of total.	
Number of companies.....	1930		1799		
Aggregate.....	\$138,094,716	100.0	\$77,595,053	100.0	78.0
Taxes, total.....	19,735,692	14.3	13,078,999	16.9	51.0
On real and personal property.....	9,404,610	6.9	5,835,542	7.5	62.2
On capital stock.....	2,348,439	1.7	2,301,252	3.8	119.9
On earnings.....	5,417,028	3.9	2,709,287	3.5	99.9
Miscellaneous.....	2,565,519	1.8	1,592,818	2.1	57.3
Interest, total.....	63,740,714	46.2	38,085,911	49.1	67.4
On funded debt.....	53,790,725	38.9	35,223,284	45.4	52.6
On real-estate mortgages.....	949,875	0.1	93,078	0.1	91.0
On floating debt.....	9,824,344	7.1	2,769,549	3.6	254.7
Rent of leased lines and terminals.....	48,022,595	34.8	25,518,225	32.9	88.2
Miscellaneous deductions.....	6,775,774	4.8	912,018	1.2	621.0

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

³ Decrease.

The aggregate deductions from income increased during the five-year interval between the censuses by over \$60,000,000, or 78 per cent. Of the separate items, the rates of increase in the interest on floating debt and in miscellaneous charges are conspicuously large, the former being over 250 per cent and the latter 621 per cent. It is a common practice,

and evidently an increasing one, for operating railway companies to receive from a holding company financial aid in the form of loans, which are carried in their accounts as floating debt. In some instances these temporary advances not only are made at a high rate of interest but carry an added charge for commission or brokerage. This fact should be borne in mind in considering the great increase in interest on floating debt in 1907 as compared with 1902. The great increase in miscellaneous deductions is accounted for by the fact that a larger number of companies in 1907 than in 1902 made depreciation and sinking-fund charges—a feature of railway accounting which is treated more fully in a later section of this chapter.

Taxes formed practically one-seventh of the aggregate deductions in 1907; interest on funded and other debt, over three-sevenths; rent of leased lines, over one-third; and all other miscellaneous deductions, nearly one-twentieth. The lowering of the per cent ratios of taxes and interest to the aggregate deductions does not of necessity indicate any lessening of the amount or rate of taxes paid, or any lowering of the average rate of interest on loans. Rather, the change in these proportions is due to the disproportionately great increase in the other two items, rentals and miscellaneous deductions. The amount paid in taxes increased both in the aggregate and per company, and the aggregate interest payments increased even more.

The amount paid in taxes increased for all the kinds of tax, both in the aggregate and per company, except in the case of taxes on capital stock. The 19.9 per cent decrease in the capital-stock taxes calls for special explanation. In the first place, it is to be noted that these statistics are for operating companies only, and it is known that some operating companies, in their reports, did not make the same division in 1907 as in 1902 between the taxes paid respectively on the capital stock of the operating companies themselves and their lessor companies. A complete tabulation of the statistics of capital-stock taxes reported in 1902 was not made, but an examination of the schedules has been carried far enough to establish the fact that the capital-stock taxes paid by operating and lessor companies combined in that year exceeded the amount (\$3,019,604) paid by both classes of companies in 1907 (see statement, p. 163). Detailed examination of the schedules and investigation developed the fact that a considerable part of the decrease is explained by the shrinkage in the market value of the securities of 1 company, which, in 1902, reported the payment of upward of \$400,000 in taxes on capital stock as against less than \$15,000 in 1907; and by a consolidation of a large number of companies into one of the largest city systems in the country, which in 1902 paid over \$300,000 in capital-stock taxes on the securities of the constituent companies as against a greatly reduced amount paid in 1907, on account of the merger.

Deductions from income for groups of companies.—Table 127 presents the deductions from income for companies, classified according to income from railway operations at the censuses of 1907 and 1902, and Table 128 shows the per cent distribution of the aggregate

among the several accounts for the different classes of companies. Tables 129 and 130 make similar distribution of the statistics for companies, classified according to kind of system and character of service in 1907.

TABLE 127.—DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES), BY ACCOUNTS, OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

ACCOUNT.	Census.	Total, all companies.	CLASSIFICATION GROUP.					Per cent of total.				
			\$1,000,000 and over.	\$500,000 but less than \$1,000,000.	\$250,000 but less than \$500,000.	\$100,000 but less than \$250,000.	Less than \$100,000.	A	B	C	D	E
			(A)	(B)	(C)	(D)	(E)					
Number of companies.....	1907	1 939	76	50	60	182	551	8.1	5.3	8.5	19.4	58.7
Per cent of increase.....	1902	799	44	28	53	112	552	8.5	3.5	6.6	14.0	70.3
		17.5	72.7	78.6	50.9	62.5	2.0					
Aggregate.....	1907	\$134,094,716	\$102,404,702	\$12,091,065	\$8,820,046	\$9,067,818	\$6,111,065	72.9	8.8	6.4	6.6	4.4
Per cent of increase.....	1902	\$77,595,053	\$56,819,948	\$5,799,751	\$5,136,642	\$5,016,268	\$4,822,444	73.2	7.5	6.6	6.5	6.2
		78.0	79.5	108.5	71.7	80.5	26.7					
Taxes.....	1907	\$19,735,602	\$15,524,362	\$1,426,804	\$1,052,242	\$1,071,560	\$860,574	78.6	7.2	5.3	5.4	2.4
Per cent of increase.....	1902	\$12,078,999	\$10,320,341	\$879,446	\$619,745	\$650,056	\$603,211	79.0	6.7	4.7	5.0	4.6
		51.0	50.3	62.2	58.1	64.8	12.8					
Interest, total.....	1907	\$63,740,744	\$35,648,870	\$8,657,223	\$6,845,099	\$7,373,255	\$5,216,327	55.9	13.6	10.7	11.6	8.2
Per cent of increase.....	1902	\$38,085,911	\$21,796,528	\$4,352,352	\$3,807,059	\$4,017,234	\$4,052,738	57.2	11.4	10.2	10.5	10.6
		67.4	63.0	96.9	77.0	83.5	28.7					
On funded debt.....	1907	\$53,766,525	\$30,105,669	\$7,035,156	\$5,678,834	\$6,534,654	\$4,412,212	56.0	13.1	10.6	12.2	8.2
Per cent of increase.....	1902	\$35,223,284	\$20,711,446	\$3,844,873	\$3,478,447	\$3,687,086	\$3,501,432	58.8	10.9	9.9	10.5	9.9
		52.6	45.4	83.0	63.3	77.2	26.0					
On real-estate mortgages.....	1907	\$149,873	\$90,773	\$4,787	\$379	\$33,214	\$18,722	60.6	3.3	0.3	23.5	12.5
Per cent of increase.....	1902	\$93,076	\$50,768	\$7,532	\$6,065	\$1,032	\$27,681	54.5	8.1	6.5	1.1	29.7
		61.0	78.8	26.4	53.8	3,312.2	22.4					
On floating debt.....	1907	\$9,824,344	\$5,452,428	\$1,017,280	\$1,105,856	\$803,387	\$755,363	56.5	16.5	11.9	8.2	8.0
Per cent of increase.....	1902	\$2,709,549	\$1,634,314	\$699,947	\$382,547	\$329,116	\$323,623	57.3	18.1	12.8	11.9	18.9
		254.7	427.2	223.5	204.8	144.1	50.0					
Rent of leased lines and terminals.....	1907	\$48,022,596	\$45,184,356	\$1,029,743	\$672,794	\$440,708	\$21,995	94.1	3.4	1.4	0.9	0.2
Per cent of increase.....	1902	\$25,518,225	\$24,296,050	\$622,650	\$430,275	\$193,794	\$105,456	93.2	1.9	1.7	0.8	0.4
		88.2	86.0	220.5	56.4	122.1	22.2					
Miscellaneous deductions.....	1907	\$6,573,774	\$3,642,114	\$277,235	\$249,941	\$173,295	\$132,189	65.8	5.7	3.5	2.6	2.0
Per cent of increase.....	1902	\$912,018	\$401,029	\$73,303	\$219,503	\$155,184	\$60,939	44.0	8.3	24.1	17.0	6.7
		621.0	1,307.2	401.0	13.8	11.7	116.9					

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

³ Decrease.

TABLE 128.—PER CENT DISTRIBUTION, BY ACCOUNTS, OF AGGREGATE DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES) OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

ACCOUNT.	PER CENT OF AGGREGATE DEDUCTIONS FROM INCOME.											
	Total.		A		B		C		D		E	
	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902	1907	1902
	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Aggregate.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Taxes.....	14.3	16.9	15.2	18.2	11.8	18.2	11.9	12.1	11.8	13.0	11.1	12.5
Interest, total.....	46.2	49.1	34.9	38.4	71.6	75.0	77.6	78.3	81.3	80.1	85.4	84.0
On funded debt.....	38.9	45.4	29.5	36.5	58.2	66.3	64.4	67.7	72.1	73.8	72.2	72.6
On real-estate mortgages.....	0.1	0.1	0.1	0.1	(1)	0.1	(1)	0.1	0.4	(1)	0.3	0.0
On floating debt.....	7.1	3.6	6.3	1.8	13.4	8.6	12.2	7.4	8.9	6.6	12.9	10.9
Rent of leased lines and terminals.....	34.8	32.9	44.3	42.8	13.5	8.5	7.6	8.4	6.0	3.9	1.3	2.2
Miscellaneous deductions.....	4.8	1.2	5.8	0.7	3.1	1.3	2.8	4.3	1.9	3.1	2.2	1.3

¹ Less than one-tenth of 1 per cent.

TABLE 129.—DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES), BY ACCOUNTS, OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

ACCOUNT.	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of companies.....	939	0	933	50	100	789
Aggregate.....	\$138,094,710	\$13,459,216	\$124,635,500	\$10,767,339	\$330,092	\$126,977,266
Taxes.....	19,755,692	1,986,249	17,769,353	992,177	47,685	18,715,739
Interest, total.....	63,740,744	3,700,062	60,040,142	6,390,099	300,988	56,948,737
On funded debt.....	53,796,525	3,425,422	50,341,103	6,127,024	253,378	47,346,123
On real-estate mortgages.....	142,875	5,355	144,530	84,316	2,175	113,384
On floating debt.....	9,924,344	269,825	9,554,519	429,699	45,435	9,349,220
Rent of leased lines and terminals.....	48,023,396	5,966,120	42,056,476	2,064,413	.....	44,968,183
Miscellaneous deductions.....	6,575,774	1,806,245	4,769,529	129,770	1,418	6,444,586

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.² Includes the statistics for the few railways not operated by electricity.³ Exclusive of 6 companies which failed to furnish this information.**TABLE 130.—Per cent distribution, by accounts, of aggregate deductions from income (taxes and fixed charges) of operating companies, classified according to kind of system and character of service: 1907.**

ACCOUNT.	PER CENT OF AGGREGATE DEDUCTIONS FROM INCOME.					
	Total, all companies.	Kind of system.		Character of service.		
		Electric elevated and subway railways.	Electric surface railways.	Selected interurban lines.	Selected small urban roads.	All other railways.
Aggregate.....	100.0	100.0	100.0	100.0	100.0	100.0
Taxes.....	14.3	14.8	14.3	9.3	13.6	14.7
Interest, total.....	46.2	27.5	48.2	61.2	88.0	44.6
On funded debt.....	38.9	25.6	40.4	56.9	72.4	37.3
On real-estate mortgages.....	0.1	(1)	0.1	0.3	0.6	0.1
On floating debt.....	7.1	2.0	7.7	4.0	13.0	7.4
Rent of leased lines and terminals.....	24.8	44.3	33.7	28.4	.....	35.4
Miscellaneous deductions.....	4.6	13.4	3.8	1.2	0.4	5.7

¹ Less than one-tenth of 1 per cent.

It is evident from Table 127 that the great increases shown for rentals and miscellaneous deductions, which have already been referred to, were due almost entirely to conditions prevailing among companies of Class A. Thus the increase in miscellaneous deductions shown for Class A amounted to 1,307.2 per cent as against an increase of only 82.5 per cent for all the other classes combined. And in the case of the rentals, though the increase for Class A is actually exceeded by the increases shown for two other classes, B and D, yet the total payments for rentals by companies of this class formed so large a proportion (94.1 per cent) of the totals for this item as to exercise the controlling influence on the percentage of increase for companies as a whole.

From Table 128 it will be seen that the distribution of the aggregate deductions from income shows some wide differences for companies of different size. With companies having an annual income of \$1,000,000 or over, the most important fixed charge is rent of leased

lines, which amounted to more than three-sevenths of the total fixed charges for these companies in 1907, while for other companies the interest on funded and other debt makes up by far the largest share of the total. Starting with Class B, for which the ratio is 71.6 per cent, the ratio of interest to total deductions increases from class to class until it reaches 85.4 per cent in Class E. Though for some classes the corresponding ratios for 1902 were smaller than in 1907, there was a similar progression—from 75 per cent for the companies belonging to Class B to 84 per cent for those in Class E. It will also be noticed that the total payments in taxes to city and state governments are proportionately heaviest in the case of the large companies of Class A, as for companies of this class slightly over 15 per cent of the total fixed charges represent such payments. These large companies also report greater allowance proportionately for depreciation and special obligations than did the smaller companies.

Table 130 shows that interest on funded obligations is the most important fixed charge with interurban lines, 56.9 per cent of their total fixed payments being required for this purpose as compared with 25.5 per cent for the electric elevated and subway railways and 72.4 per cent for the selected small urban roads. On the other hand, tax payments are relatively small for interurban lines, only 9.2 per cent of the total deductions from income being thus applied as compared with 13.6 and 14.8 per cent, respectively, for the selected small urban roads and the elevated and subway railways.

Taxes.¹—In 1907 the operating and lessor companies combined paid \$20,682,061 in taxes to the local and state governments as compared with \$13,366,335 in 1902, an increase of \$7,315,726, or 54.7 per cent. There is a lack of uniformity in the various states and municipalities in regard to the definition and interpretation of the different kinds of taxes, which detracts

¹ See Ch. V of Part II of this report for municipal taxation methods, etc.

somewhat from the value of these statistics when the total taxes are itemized by kinds. While taxes on real estate were reported for all states, there are wide variations in the rate and the method of determining the value of the property subject to taxation. The following statement shows the total taxes reported for 1907, divided according to the kinds of tax and the amount of each kind contributed by the operating and the lessor companies:

Taxes, distributed by kind, of operating and lessor companies, respectively: 1907.

CLASS OF COMPANY.	Total.	KIND OF TAX.			
		On real and personal property.	On capital stock.	On earnings.	Miscellaneous.
Total, all companies.....	\$20,692,063	\$9,548,216	\$3,019,604	\$3,553,079	\$2,561,162
Operating.....	19,755,072	9,464,616	2,348,439	5,457,028	2,505,519
Lessor.....	926,459	83,600	671,165	116,051	55,643

The taxes paid by lessor companies were only 4.5 per cent of the total for all companies. In the majority of cases the terms of the lease agreement stipulate that the taxes be paid by the lessee company, and as many lessee or operating companies carried but one tax account for both properties, the Census Bureau did not segregate the total charged against the 2 companies. By reference to Table 105 it will be seen that Pennsylvania reported the bulk of the taxes paid by lessor companies, amounting to \$878,438, or 94.8 per cent of the total for all lessor companies. In this state taxes were reported as levied on real and personal property, capital stock, and earnings.

Table 132 gives the total amount of taxes paid by operating companies, by states. The only decrease shown, that for Pennsylvania, was occasioned by a different division of the taxes between operating and lessor companies at the two censuses. One large company, which operated many leased properties, did not include the taxes paid on account of lessor companies in the 1907 operating report, while it did so include them in 1902. A combination of the amounts reported as paid for taxes by both operating and lessor companies in Pennsylvania for 1907 and 1902 indicates a substantial increase for the five-year period.

Only 26 states in 1907 and 14 states in 1902 imposed a tax on capital stock and bonds. It is possible that many small payments of incorporation fees, amounting in the aggregate to a considerable amount, have been included in the total shown for taxes on capital stock. Taxes on earnings (usually gross income) were levied in 33 states in 1907 and in 23 in 1902. The \$2,505,519 reported by operating companies under the head of miscellaneous taxes in 1907 included payments for car licenses, pole taxes, paving assessments, business licenses, franchise and corporation taxes, and

numerous other forms of special payments required by municipal, county, and state governments.

Some companies also regard the cost of special crossing policemen and of free city lighting as miscellaneous taxes, on the ground that any requirement by city authorities not necessary to the actual operation of the property is a compulsory expense and therefore a tax. Upon this assumption the value of all free electric service furnished municipalities by electric railways would be treated as taxes. The estimated amount of income lost because of such free lighting and power service was reported by railways engaged in the light and power business in 1907 as \$33,697.

Ratio of taxes to gross income.—Table 131 shows the per cent ratio of taxes to gross income in 15 important states for 1907 and 1902.

TABLE 131.—Per cent ratio of taxes to gross income of operating and lessor companies combined, selected states: 1907 and 1902.

STATE.	PER CENT RATIO.	
	1907	1902
California.....	4.2	5.0
Connecticut.....	4.8	6.0
Illinois.....	5.0	5.9
Indiana.....	4.4	4.9
Kentucky.....	6.5	6.1
Louisiana.....	6.0	6.9
Maryland.....	7.7	8.2
Massachusetts.....	6.2	6.8
Michigan.....	3.5	3.5
Missouri.....	6.1	6.0
New Jersey.....	4.9	5.3
New York.....	4.7	5.6
Ohio.....	4.4	3.6
Pennsylvania.....	4.6	6.1
Tennessee.....	6.9	6.1

Of the selected states, Maryland shows the highest ratio of taxes to gross income in both 1907 and 1902, owing largely to the fact that the city of Baltimore lays a heavy tax on the gross receipts of its railways. Tennessee shows the next highest ratio in 1907, 6.9 per cent, followed by Kentucky, with 6.5 per cent. At the census of 1902 Louisiana and Massachusetts were next in order after Maryland. The taxes paid in 1907 by the 2 important railway companies in Memphis and Nashville, Tenn., and by the large company in Louisville, Ky., were very large and formed a high percentage of the gross incomes of these companies.

The states of California, Indiana, Michigan, and Ohio show a low ratio of taxes to income. In these states a large proportion of the railway business is done by the interurban lines, which are not so heavily taxed as are the companies operating wholly within the corporate limits of cities and towns.

Table 90, which gives the per cent distribution of the gross income of operating companies, shows that the per cent ratio of taxes to gross income was smaller in 1907 than in 1902, the percentages being, respectively, 4.6 and 5.2. By reference to Table 99 it will be seen that a decreased ratio is also shown for income Classes A, B, and D, and a constant ratio for Class E,

an increase appearing only in the case of Class C (income of \$250,000 but less than \$500,000). As these are all statistics of operating companies, it may be thought that the decreased ratio is due to a difference in the attribution of total taxes to the operating and lessor companies, respectively, in the two censuses. But as a matter of fact the per cent ratio of total taxes to gross income shows a similar decrease for operating and lessor companies combined, from 5.3 per cent in 1902 to 4.8 per cent in 1907, though this decrease is slightly less than that for operating companies alone. Table 131 shows that the decrease was fairly general among the selected states, 10 of them showing decreased percentages for 1907, 4 of them increased percentages, and 1 the same percentage for both years.

The statistical evidence seems conclusive, then, that there was a general and typical decrease in the ratio of taxes to gross income, and such a general decrease calls for explanation of an equally general character. Such an explanation is found in a consideration of the usual bases of taxation, in connection with a consideration of the increase in gross receipts between 1902 and 1907. Though the method of basing taxes on earnings has been increasingly used in recent years, by far the larger part of the taxes of street and electric railways is still levied on the basis of the real and personal property of the companies. Under these circumstances, taxes will not keep pace with gross income unless assessors are everywhere prompt to increase real and personal property valuations, as the gross earning power of the companies increases. The gross receipts of street and electric railways are shown by the statistics to have increased very greatly and to have reached an exceedingly high mark in 1907. It is highly improbable that real and personal property assessments have been increased in anything like the same proportion. The necessary effect of such a condition of things would be that which the statistics indicate—a decrease in the ratio of taxes to gross income. The decrease would be most marked wherever increased traffic is carried on lines already existing, rather than on extensions or additions, which would quickly find their place in the records of the assessors. It is therefore probable that an even greater decrease would have been shown for 1907 had not the increase of trackage between 1902 and 1907 exceeded the increase of traffic for the large companies of Classes A and B (see p. 86).

Interest.—The annual payments by street and electric railways to meet interest charges on their funded and floating debt, and on their real-estate mortgages amount to a large aggregate—\$81,771,266 for 1907 and \$46,462,470 for 1902, an increase during the five years of \$35,308,796, or 76 per cent. Earlier tables of this chapter, which accompany the discussion of the income account, show for companies as a whole

and by groups the interest charges of operating and lessor companies in their relation to gross income. In Chapter VI (p. 100) will be found a detailed analysis of the statistics relating to interest on funded debt, which is the principal item of the total interest charge. The following statement shows the interest paid by operating and lessor companies by character of debt:

Interest on funded and other debt of operating and lessor companies: 1907 and 1902.

CLASS OF COMPANY.	Census.	INTEREST.		
		Total.	On funded debt.	On floating debt and real-estate mortgages.
Total, all companies.....	1907	\$81,771,266	\$71,408,788	\$10,362,478
	1902	46,462,470	43,578,941	2,883,529
Operating.....	1907	63,740,744	53,764,525	9,976,219
	1902	38,085,911	35,223,284	2,862,627
Lessor.....	1907	18,030,522	17,702,263	328,259
	1902	8,376,559	8,355,677	20,882

It should perhaps be explained that although the interest on bonds of leased companies is guaranteed by the lessee and often paid directly by the latter to the bondholders of the lessor company, the distinction between the interest accruing on the securities of the two classes of companies was preserved in the census statistics. In 1907 the interest payments on funded debt were divided between operating and lessor companies in the ratio of about 3 to 1 as compared with a ratio of over 4 to 1 in 1902.

Dividing the total amount reported in 1907 as interest on floating debt and on real-estate mortgages, practically all of it being interest on floating debt, by the amount of such debt reported, gives a quotient of 3.64, which is the statistical average rate of return. This average, however, can not be taken as expressing an average or typical rate of interest paid on such debts. Such debts are essentially unstable, the amount frequently fluctuating widely from month to month; and a large part of it represents advances between affiliated companies, on which no interest is charged. On the other hand, in some cases, as with the Pennsylvania companies, to which reference has been made, the amount paid included both nominal interest and brokerage, or commission, and the real rate was therefore very high.

Rent of leased lines and terminals.—The total for this item, when shown as a deduction from income, includes, principally, payments by operating companies for the use of track owned by nonoperating companies; but it also contains a considerable amount paid by operating companies for the use of track owned by other operating companies or by steam railroads. It excludes such rentals, however, in those cases in which the owners have not entirely relinquished the right of operation. In these cases the

rentals are counted in operating expenses, and not in fixed charges. It also excludes the rentals paid to the city by the railway companies in New York and Boston for the use of subways built and owned by the municipality, these rentals being counted in the "Miscellaneous deductions" from income.

The total paid by operating companies for the rent of leased lines and terminals amounted in 1907 to \$48,022,596, an increase over the amount paid in 1902 of \$22,504,371, or 88.2 per cent. Next to the interest on funded and other debt, this item constituted the largest fixed charge. By reference to Table 132 it will be seen that, although rentals for leased lines were paid in 1907 in 21 states, \$39,137,695, or 81.5 per cent of the total, was reported from the North Atlantic states, while \$7,885,834, or 16.4 per cent of the remainder, was reported by the companies in the North Central division, only \$999,067, or 2.1 per cent of the total being reported by the other three divisions.

The largest payment for leased lines, \$19,279,392, was reported for New York, and the next largest, \$13,554,786, for Pennsylvania, the two constituting over two-thirds of the total for all states. In New York City the elevated, subway, and surface lines are practically all operated under lease by 3 companies; in Pennsylvania the city systems of Philadelphia and Pittsburg are each operated by 1 company; in Boston the railways are controlled by 3 companies; and in Providence, R. I., the system is operated by 1 company. In both Connecticut and New Jersey a large proportion of the railways are under the control of 1 company, partly through lease and partly as the result of a merger. In Norfolk, Va., New Orleans, La., and Cincinnati, Ohio, the city systems are operated under lease by 1 company. In Chicago there is also considerable leasing of surface lines. In Ohio and Indiana many of the railways required to form connecting systems of interurban lines were acquired by lease agreements. Table 183 shows the names and locations of the different individual companies and whether they were operating or lessor companies.

Miscellaneous deductions.—The rentals paid by the railway companies in New York and Boston for the use of the city subways formed roughly one-third of the total miscellaneous deductions from income in 1907. The remainder represents chiefly depreciation charges, sinking funds, and in a few cases, special payments not specified.

In the making of these minor accounts and in reporting them to the Census Bureau, the practice of the companies was so confused and lacking in uniformity that little statistical showing of the results can be made. Sinking funds, depreciation funds, and "reserves" were given varying interpretations, and were combined in varying ways. As a result it has been deemed impracticable to attempt any statistical discussion of these items, except in the case of the depreciation fund, for which the data are somewhat more complete and distinguishable than for the others.

Depreciation funds.—Depreciation funds are set apart—in the accounts of a company—as special funds from which to pay for the replacement of the physical equipment as it wears out or becomes obsolete. It is thus a provision by the company against an accruing "liability" of the company itself toward its plant, rather than a liability incurred once for all to persons outside the company; and the date of its final use is unknown and uncertain, as contrasted with the fixed and known date of the term of the company's debts. Depreciation and the best method of providing for it are matters that received little or no consideration in the early days of street railways. It was usual to say that the surplus account and the appreciation of properties through growth and expansion of traffic would take care of the depreciation. But with the electrification of the railways, with the rapid obsolescence of old forms of equipment and plant through changes in operative power, etc., and as an incident of consolidation with the attendant recapitalization, the problem of providing for depreciation has come to be one of increasing recognition and importance.

The object of a depreciation fund or account is to provide for the maintenance of original values and the replacement of equipment, ways, and structures, and all parts thereof, when their period of usefulness has run; or, in other words, to maintain the integrity of the property at all times. The essential point is that revenue should be charged with a proper sum to cover the deterioration in the value of wasting assets, and that the apportionment of this sum as between one year and another should be upon equitable lines.¹ The current repairs to machinery and structures necessary to maintain them in suitable condition is considered an operating expense that is incident to the regular operation of a road and is as properly a charge against operating income as is the cost of the materials and supplies consumed or the labor employed. But all machinery and structures are also in their own degree subject to wear and tear or decay that in time lowers their efficiency to a point where it is advisable to replace with new rather than to repair the old; and depreciation charges are to provide for such extraordinary expenditures made to maintain the property as a going concern at its original value and efficiency. Depreciation results not only from the gradual decay that is caused by "wear and tear," but also from the occasional obsolescence of plant or equipment that is caused by new processes, or inventions, or other changes in the industry. Thus it often happens that machinery has to be sent to the scrap pile long before its natural life has run.

It was thought that the substitution of electric power for animal or cable power would materially reduce operating expenses, but the percentage allowance for depreciation which once sufficed to main-

¹ See "Depreciation, Reserves, and Reserve Funds," Lawrence R. Dicksee, London, 1907.

tain a property is no longer sufficient. With the introduction of electricity have come larger cars and higher speeds, which in turn have required heavier rails and better roadbeds, and enlarged and improved power plants. All the elements in the car operation are now on a larger scale than formerly, and those which involve wear and tear perhaps more so than others.

The temptation to distribute net earnings as dividends and to trust to the future to take care of future requirements has often prevailed over the more conservative policy of insuring against every phase of deterioration of the property. Naturally the elimination from the cost of maintenance of any part of the cost of maintaining the physical property at its original value and efficiency results in making the cost of maintenance appear too low.

The returns to the Census Bureau are not in a form to show, in all cases, whether a charge or allowance for depreciation has been made. Such an allowance for depreciation may be made in one of several ways. For example:

(1) By charging at stated periods a percentage or fixed amount to the proper items of operating expense, though the expenditure is not actually incurred.

(2) By charging a lump sum yearly, to be deducted from income, before arriving at the net income for the year.

(3) By charging off a part of the net income or surplus for the year which is to be carried to the balance sheet, so that the income-account surplus and the balance-sheet surplus vary by the amount of the allowance.

The practice of the different companies in providing for depreciation is not uniform, and only when the second method is used is it possible to determine from the census reports whether allowance has been made for depreciation. Many companies carry a portion of their net earnings to surplus, which in some measure takes the place of a depreciation fund.

Depreciation accounts, designated as replacement accounts, are generally carried for the several classes of property which are subject to depreciation, such as cars and electric locomotives, electric equipment of cars, power-plant equipment, electric generators and substation equipment, track and electric-line construction, buildings and fixtures, etc.

The carrying of depreciation accounts requires that a line should be drawn between charges to maintenance and those to depreciation reserve. Replacements of parts of short life, such as wheels which often wear out after a few months' service, brake shoes, the rewinding of motors, the painting of cars, etc., are clearly items chargeable to maintenance. All repairs which keep a car in service are properly chargeable to maintenance, but at some point in the life of a car the continuance of repairs ceases to be

profitable and the car should be scrapped or sold. The cost of a new car, less the amount, if any, realized on the old one, then becomes an item for the depreciation account.

It is good financial practice for the company to charge every year to the depreciation account a fixed and uniform percentage of the purchase price of the equipment rather than to attempt to determine and charge the actual deterioration of the successive years. That this annual percentage rate depends upon the average life of the equipment is obvious, but there is much discussion among technical experts as to what specific rates for the various forms of equipment should be.

The following statement of rates of depreciation may be taken as representing the judgment of experts in this matter:

Rates of depreciation.¹

ITEM.	ESTIMATED PER CENT OF DEPRECIATION.		
	Adopted by Chicago Union Traction Co.	Adopted by Third Avenue Railroad Co., New York. ²	Adopted for adjusted accounts of Milwaukee Electric Railway and Light Co.
Track and roadway:			
Track, ties, bonding, etc.	7.75	8 to 9	7.5
Special work and installation	7.75		8.0
Rolling stock:			
Bodies and trucks	5.00	5	5.0
Electrical equipment	6.66 to 8.33		7.5
Fenders, registers, lights, clocks, etc.			10.0
Overhead system:			
Poles	5.00		5.0
Wiring, fittings, etc.	10.00 to 14.00		10.0
Underground system:			
Conduits		3	2.0
Fuses, cables, etc.		3	4.0
Power-plant equipment:			
Engines	6.66	4	5.0
Boilers	6.66		7.5
Heaters, economizers, pumps, etc.	6.66		7.5
Piping	6.66		5.0
Travelling cranes	6.66		5.0
Beltting, shafting, ropes, etc.	6.66		5.0
Coal and ash conveyors and hoist wagons	6.66		5.0
Dynamoes	6.66		5.0
Generating apparatus	6.66		5.0
Storage battery	6.66		10.0
Switchboard and cables	6.66		5.0
Shop tools and machinery	5.00		7.5
Buildings and improvements	2.00	2	2.0

¹ From table submitted in the case involving the rates of fare in the city of Milwaukee, *Electric Railway Journal*, April 10, 1909.

² Rates quoted in the franchise-tax case.

³ Iron poles.

In the census tables the deductions from income on account of depreciation, when charged as a lump sum yearly, are included under the head of "Miscellaneous deductions" from income. Of the total of \$6,575,774 reported under the head of miscellaneous deductions, the sum of \$2,397,250 represents charges for depreciation, specifically reported as such, or credits to depreciation and sinking fund combined.

The following statement shows, by geographic divisions, the number of companies thus reporting depreciation allowances at the census of 1907 and the amounts so reported in connection with the figures reported for cost of construction and equipment:

Depreciation deductions and cost of construction and equipment, for companies reporting same: 1907.

DIVISION.	COMPANIES REPORTING DEPRECIATION DEDUCTIONS.			
	Number of companies.	Cost of construction and equipment.	Charges for depreciation.	
			Amount.	Per cent of cost of construction and equipment.
United States.....	26	\$271,093,220	\$2,397,250	0.88
North Atlantic.....	2	23,264,954	115,734	0.50
South Atlantic.....	3	5,487,174	34,535	0.63
North Central.....	16	217,295,712	1,088,570	0.92
South Central.....	2	9,331,938	85,883	0.92
Western.....	3	16,313,442	172,508	1.06

The amounts and ratios of allowances for depreciation here shown are manifestly far from the actual

ones, as they are also far from proper ones. There are several obvious reasons for the defects in the statistics, both as to their completeness and as to their comparability. First of all, the amounts here shown for depreciation represent only amounts that were accounted for by the companies in the second of the three bookkeeping methods mentioned above. Secondly, the amounts of depreciation charges are shown in relation to the costs of all the properties of the company, whereas they were undoubtedly, in many cases, limited to specific purposes, as, for example, to specific forms of equipment. And finally, it must be recalled that the census term "cost of construction and equipment" covers franchises, "good will," etc., as well as physical properties, and all at book values rather than at the figures of actual costs.

TABLE 132.—DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES), BY ACCOUNTS, OF OPERATING COMPANIES, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

STATE OR TERRITORY.	Census.	Number of companies.	Aggregate.	Taxes.	INTEREST.				Rent of leased lines and terminals.	Miscellaneous deductions.
					Total.	On funded debt.	On real-estate mortgages.	On floating debt.		
United States.....	1907	1939	\$128,094,716	\$19,755,002	\$63,740,744	\$33,766,825	\$149,873	\$9,834,344	\$48,022,596	\$6,575,774
	1902	1799	77,595,053	13,078,999	38,083,911	35,223,294	93,078	2,769,549	25,518,225	912,018
North Atlantic division.....	1907	365	71,907,673	8,781,893	30,526,735	15,517,003	96,314	4,913,418	39,137,685	3,461,350
	1902	356	43,101,611	7,472,605	16,945,309	15,227,666	61,043	1,656,650	18,516,397	467,400
Maine.....	1907	17	469,277	43,383	425,994	407,021	2,250	16,623	.....	.....
	1902	19	237,050	29,704	301,772	266,969	667	34,136	4,000	1,574
New Hampshire.....	1907	16	112,510	15,919	96,591	80,515	.....	16,076	.....	.....
	1902	7	83,786	7,622	47,390	39,550	.....	7,840	28,574	.....
Vermont.....	1907	10	117,601	9,796	107,451	102,737	.....	4,714	.....	355
	1902	9	45,089	4,427	40,682	36,721	.....	3,941	.....	.....
Massachusetts.....	1907	62	7,061,339	1,911,510	2,610,927	1,908,577	10,975	691,375	2,145,639	393,263
	1902	74	5,106,619	1,609,406	1,524,248	1,071,242	712	482,294	1,967,540	7,335
Rhode Island.....	1907	5	1,538,793	292,145	185,006	83,225	.....	101,781	1,054,080	7,562
	1902	7	351,767	140,814	210,953	205,300	.....	5,593	.....	.....
Connecticut.....	1907	8	2,154,647	359,512	209,008	124,379	75	85,155	831,650	753,877
	1902	21	1,128,319	243,393	757,580	732,108	.....	25,472	108,046	19,300
New York.....	1907	101	35,354,067	4,297,725	9,730,805	7,146,032	68,867	2,515,016	19,279,392	2,046,165
	1902	96	19,552,955	3,428,461	10,333,127	9,528,743	30,786	773,638	5,719,590	71,778
New Jersey.....	1907	24	5,755,396	627,510	2,940,704	2,000,839	7,008	231,937	2,272,148	15,034
	1902	25	3,625,740	431,912	1,573,411	1,476,383	10,114	80,914	1,596,217	34,300
Pennsylvania.....	1907	122	19,344,023	1,224,394	4,319,749	3,062,759	6,249	1,260,741	13,554,796	245,094
	1902	96	12,868,296	1,576,476	2,050,166	1,970,540	18,804	106,622	8,902,421	333,213
South Atlantic division.....	1907	100	7,908,784	1,549,424	5,982,598	5,279,792	2,330	700,456	345,370	122,392
	1902	75	5,290,379	896,718	4,437,697	4,289,254	5,850	142,503	2,665	13,349
Delaware.....	1907	4	203,623	15,313	143,255	47,000	900	95,355	43,200	1,856
	1902	3	77,439	13,973	63,460	39,000	2,250	22,216	.....	.....
Maryland and District of Columbia.....	1907	19	3,794,390	778,544	2,914,375	2,684,780	.....	219,595	5,500	9,881
	1902	19	3,237,193	562,685	2,671,533	2,605,132	.....	65,401	1,975	1,000
Virginia.....	1907	22	1,287,931	240,199	756,190	710,064	250	45,876	239,375	52,197
	1902	16	547,730	46,845	490,484	407,602	3,000	19,222	.....	10,401
West Virginia.....	1907	15	743,200	93,493	639,756	508,727	.....	131,029	4,796	5,156
	1902	8	265,842	28,030	237,812	230,959	.....	6,853	.....	.....
North Carolina.....	1907	11	353,806	39,058	230,922	100,615	.....	60,307	52,500	41,326
	1902	7	98,943	10,791	87,219	80,310	.....	6,909	.....	983
South Carolina.....	1907	7	390,713	42,007	340,705	238,050	.....	102,656	.....	8,000
	1902	7	233,196	21,109	180,392	161,359	.....	19,133	720	975
Georgia.....	1907	12	1,124,989	200,235	830,757	607,568	1,200	21,989	.....	3,907
	1902	10	755,207	110,846	644,361	642,712	.....	1,649	.....	.....
Florida.....	1907	10	186,222	49,565	136,637	112,988	.....	23,649	.....	.....
	1902	6	74,779	12,439	62,340	62,220	.....	120	.....	.....

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 132.—DEDUCTIONS FROM INCOME (TAXES AND FIXED CHARGES), BY ACCOUNTS, OF OPERATING COMPANIES, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

STATE OR TERRITORY.	Census.	Number of companies.	Aggregate.	Taxes.	INTEREST.				Rent of leased lines and terminals.	Miscellaneous deductions.
					Total.	On funded debt.	On real-estate mortgages.	On floating debt.		
North Central division.....	1907	203	\$29,803,747	\$5,406,052	\$23,262,652	\$20,802,779	\$46,211	\$2,410,062	\$7,885,834	\$2,249,200
	1902	235	22,968,954	3,521,080	11,831,862	10,983,675	23,121	825,066	7,195,871	419,531
Ohio.....	1907	73	9,215,583	1,387,052	4,612,432	3,887,376	37,710	687,346	3,155,380	60,719
	1902	62	4,137,866	601,142	2,457,384	2,295,268	3,280	159,086	1,066,636	12,504
Indiana.....	1907	23	4,477,535	499,273	1,683,272	1,776,758	600	105,914	1,066,943	128,047
	1902	20	1,201,297	185,014	984,391	952,219		32,172		31,862
Illinois.....	1907	70	10,668,510	2,018,199	5,907,635	5,434,234	10,745	462,656	2,648,012	94,674
	1902	48	8,453,191	1,488,359	3,037,830	2,786,563	11,530	239,737	3,878,007	51,968
Michigan.....	1907	24	2,967,093	286,514	2,445,800	2,244,763	108	200,928		34,700
	1902	24	1,788,797	228,538	1,547,772	1,501,111		46,661		12,467
Wisconsin.....	1907	20	2,180,929	823,966	1,380,206	1,292,065		88,171		474,757
	1902	17	1,081,100	150,059	646,194	624,205	6,634	15,355		284,907
Minnesota.....	1907	5	2,128,156	415,965	1,122,138	1,069,325		52,813		890,053
	1902	5	1,027,121	131,128	870,038	864,422		5,616	24,064	1,891
Iowa.....	1907	24	804,434	99,582	749,454	660,783		88,669	2,913	42,485
	1902	22	429,373	54,115	353,118	344,839		8,279		22,140
Missouri.....	1907	14	6,150,063	1,068,222	4,490,780	3,798,020		692,760	14,400	546,061
	1902	16	4,636,401	646,882	1,736,840	1,439,798	1,677	315,365	2,230,164	1,715
North and South Dakota ¹	1907	5	19,993	2,069	17,761	16,000		1,761		163
Nebraska.....	1907	8	803,573	139,768	390,017	386,875	48	3,094	97,840	208,318
	1902	4	150,297	28,252	122,045	119,750		2,296		
Kansas.....	1907	17	206,888	33,922	263,148	246,608		16,540	346	8,572
	1902	11	64,451	8,401	56,050	55,500		550		
South Central division.....	1907	90	6,950,418	1,378,786	3,059,320	4,421,015		638,303	320,449	200,563
	1902	66	2,784,169	577,189	2,165,596	2,000,014	400	165,182		11,389
Kentucky.....	1907	13	1,109,233	313,328	799,097	756,646		23,451		6,806
	1902	12	777,433	177,775	598,594	591,872		6,922		1,064
Tennessee.....	1907	9	1,418,575	310,140	1,040,975	977,083		63,892		67,440
	1902	8	506,356	113,573	478,473	441,222		37,251		2,310
Alabama.....	1907	10	968,048	178,373	741,292	692,487		48,805		68,363
	1902	9	384,762	37,047	347,330	264,653		92,677		385
Mississippi.....	1907	8	247,833	31,890	209,121	179,610		30,311		6,822
	1902	5	39,684	4,501	34,183	32,173		2,008		
Louisiana.....	1907	11	1,890,680	359,837	1,173,857	1,021,270		152,587	320,449	36,537
	1902	8	620,290	200,156	482,394	476,530	600	6,064		6,630
Arkansas.....	1907	6	253,537	30,917	232,720	212,023		20,697		
	1902	7	68,071	7,213	60,858	50,850		10,008		
Oklahoma ²	1907	8	109,230	7,732	96,645	85,200		1,445		14,853
Texas.....	1907	23	932,282	146,609	785,613	496,680		288,717		
	1902	17	199,483	26,919	162,564	152,912		9,652		
Western division.....	1907	91	11,425,094	1,640,447	8,909,439	7,745,936	2,000	1,161,503	333,248	541,900
	1902	67	3,509,940	700,802	2,805,537	2,722,725	2,664	80,148	3,262	339
Montana.....	1907	5	120,851	22,519	79,638	77,500		2,138		18,094
	1902	5	74,633	13,975	60,659	58,375		2,283		
Colorado.....	1907	11	1,273,024	148,462	1,033,840	981,523		52,317		90,722
	1902	7	536,005	78,264	454,479	441,645		12,834	3,262	
Washington.....	1907	14	1,788,314	388,322	1,251,023	890,714		390,309	117,417	1,352
	1902	8	463,101	78,239	384,962	374,163		10,699		
Oregon.....	1907	8	992,748	117,548	875,200	861,963	2,000	11,217		
	1902	6	146,519	17,622	128,897	128,719		178		
California.....	1907	41	6,732,705	896,273	5,189,609	4,555,559		634,050	215,831	430,992
	1902	35	2,112,939	490,179	1,617,550	1,579,043		38,507		230
All other Western states and territories ³	1907	12	517,452	67,323	450,129	378,657		71,472		
	1902	6	176,723	17,523	159,081	140,780	2,664	15,637		109
Hawaii and Porto Rico ⁴	1907	4	184,392	29,381	110,171	93,159		17,012		44,750
	1902	5	106,013	10,987	68,619	66,305		2,313		26,410

¹ No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.² No company reported in 1902.³ Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.⁴ Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

V.

GENERAL RESULTS OF OPERATION.

The standards for measurement of prosperity or of operative conditions or efficiency selected for treatment in this section are the average operating earnings and expenses and the net earnings per mile of track, per car mile, and per passenger carried. Obviously no one of these standards is by itself entirely satisfactory as a criterion of the results of operation; they are of greatest efficiency when applied to the statistics of a single company, so that the different methods and conditions under which the company is operated can be given due weight. The results obtained by apply-

ing these standards to the totals for all classes of companies, operated under various and varying conditions, should not be accepted as reflecting the actual conditions for any single company. In regard to the general trend of railway transactions, however, such averages convey a better idea than can be obtained from a consideration of large aggregates. Moreover, the differences in the various averages as shown for the classes of companies, where classifications are made, possess the greatest significance that such statistics can be made to bear, as measuring the amount and character and "movement" of the various influences that condition railway management and success.

TABLE 123.—GENERAL RESULTS OF OPERATION OF COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

UNIT.	Census.	Total, all companies.	CLASSIFICATION GROUP.				
			\$1,000,000 and over. (A)	\$500,000 but less than \$1,000,000. (B)	\$250,000 but less than \$500,000. (C)	\$100,000 but less than \$250,000. (D)	Less than \$100,000. (E)
Number of companies.....	1907 1902	1 639 1 799	76 44	50 28	80 53	152 112	551 562
Per cent ratio of operating expenses to operating earnings.....	1907 1902	60.1 57.5	58.4 54.8	60.9 57.7	63.1 59.0	64.1 64.3	72.1 70.8
Operating earnings per mile of track, total.....	1907 1902	\$12,268.00 11,152.00	\$19,287.00 19,935.00	\$4,345.00 9,651.00	\$7,630.00 7,106.00	\$6,467.00 5,812.00	\$4,152.00 3,668.00
Operating earnings per mile of track, exclusive of income from sale of current.....	1907 1902	11,678.00 10,805.00	18,798.00 19,681.00	7,838.00 9,282.00	6,947.00 6,816.00	5,568.00 5,376.00	3,548.00 3,241.00
Operating earnings per car mile, total.....	1907 1902	0.2367 0.2187	0.2625 0.2262	0.2481 0.2112	0.2698 0.2130	0.2634 0.1909	0.2300 0.1812
Operating earnings per car mile, exclusive of income from sale of current.....	1907 1902	0.2472 0.2119	0.2558 0.2263	0.2300 0.2032	0.2446 0.2020	0.2276 0.1920	0.1965 0.1603
Operating expenses per car mile, total.....	1907 1902	0.1501 0.1257	0.1532 0.1255	0.1510 0.1219	0.1607 0.1270	0.1667 0.1206	0.1628 0.1284
Power-plant expenses per car mile.....	1907 1902	0.0273 0.0204	0.0240 0.0179	0.0267 0.0193	0.0333 0.0208	0.0369 0.0252	0.0445 0.0327
Expenses for operation of cars per car mile.....	1907 1902	0.0624 0.0552	0.0647 0.0583	0.0547 0.0535	0.0603 0.0524	0.0562 0.0493	0.0522 0.0439
Passenger earnings per fare passenger.....	1907 1902	0.0515 0.0494	0.0499 0.0484	0.0557 0.0498	0.0505 0.0540	0.0505 0.0531	0.0554 0.0514
Operating expenses per fare passenger.....	1907 1902	0.0329 0.0301	0.0308 0.0274	0.0381 0.0305	0.0425 0.0358	0.0450 0.0384	0.0500 0.0426
Net earnings per mile of track.....	1907 1902	4,895.00 4,741.00	8,032.00 9,020.00	3,265.00 4,062.00	2,817.00 2,874.00	2,324.00 2,073.00	1,158.00 1,069.00

¹ Exclusive of 6 companies which failed to furnish financial data.

² Exclusive of 18 companies which failed to furnish financial data.

A mile of track, as a unit of measure, expresses the foundation upon which all railway business rests, and is perhaps the best unit of comparison for all general statistics. The advantages of the car-hour unit over the car-mile unit have been considered elsewhere,¹ but although the former unit was employed by a larger number of companies in 1907 than in 1902, it is not yet used by all of the companies or even by a sufficient number to make it available as a basis for general comparative statistics. The car mile, on the other hand, is a unit employed by all street and electric railways. The fare-passenger unit is also an available one, and has been used as a basis for com-

parisons for all roads doing a passenger business. It must be borne in mind that the car-mile unit is complex, being made up of two units, one of which is regarded as a unit of capacity and the other of distance. Hence the unit can not be a constant one, since, while the element of distance is constant, the other, that of capacity, is continually varying. Indeed, the variation of this element is one of the changes that the car-mile figures are designed to show. Capacity, in its turn, depends obviously upon the size and type of the car, upon its condition, and, as might be maintained from one point of view, upon its speed. In all these respects the car of 1907 is much changed from the car of 1902, and the effect is apparent when earnings and expenses are considered on a car-mile basis.

¹ See p. 88.

Similarly, there are many things that have to be kept in mind when making comparisons on the basis of the number of fare passengers carried. Thus a change in the policy of a railway in granting free transfers may mean a change in the number of fare passengers carried, without a corresponding change in the traffic statistics. Again, the fare-passenger unit ignores the factor of length of ride; or, perhaps it may better be said that it assumes a uniform average length of ride for all companies and all times. This assumption is only roughly true for strictly urban traffic, while as between urban and rural or inter-urban traffic it is very far from true. The development of interurban lines has introduced into the sta-

tistics a large and growing number of long-trip passengers. In some cases these long-trip passengers pay their fares by "zones," a ticket or fare being collected at the beginning of each "zone" of travel. In such cases the "passenger" as a unit is not far different from the passenger of the urban statistics, though representing a distance traveled that is undoubtedly above the average. But it frequently happens that interurban passengers are carried long distances on a single ticket, in the same way as on the steam railroads. The result is that such passengers—though counted by the "head" or by the tickets sold them, equaling a varying number of urban passengers—lessen the number of "passengers" and increase all resultant averages.

TABLE 134.—GENERAL RESULTS OF OPERATION OF COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

UNIT.	CLASSIFICATION GROUP.							
	TOTAL, ALL COMPANIES.		Without commercial lighting. ¹		With commercial lighting.		Part-time.	
	1907	1902	1907	1902	1907	1902	1907	1902
Number of companies.....	290	299	700	630	475	112	55	57
Per cent ratio of operating expenses to operating earnings.....	60.1	57.5	60.0	57.4	60.3	58.1	71.8	58.1
Operating earnings per mile of track, total.....	\$12,298.00	\$11,122.00	\$13,178.00	\$11,794.00	\$10,022.00	\$8,978.00	\$1,568.00	\$2,078.00
Operating earnings per mile of track, exclusive of income from sale of current.....	11,678.00	10,805.00	13,045.00	11,731.00	7,620.00	6,358.00	1,465.00	2,904.00
Operating earnings per car mile, total.....	0.2307	0.2187	0.2519	0.2157	0.3085	0.2697	0.2361	0.1901
Operating earnings per car mile, exclusive of income from sale of current.....	0.2472	0.2119	0.2493	0.2145	0.2346	0.1839	0.2250	0.1854
Operating expenses per car mile, total.....	0.1561	0.1257	0.1512	0.1239	0.1850	0.1509	0.1665	0.1105
Power-plant expenses per car mile.....	0.0273	0.0204	0.0290	0.0196	0.0345	0.0283	0.0531	0.0250
Expenses for operation of cars per car mile.....	0.0924	0.0552	0.0631	0.0560	0.0588	0.0478	0.0566	0.0410
Passenger earnings per fare passenger.....	0.0515	0.0404	0.0510	0.0403	0.0542	0.0403	0.0819	0.0821
Operating expenses per fare passenger.....	0.0339	0.0301	0.0321	0.0292	0.0455	0.0420	0.0729	0.0381
Net earnings per mile of track.....	4,895.00	4,741.00	5,268.00	5,022.00	3,981.00	3,761.00	439.00	1,247.00

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of 6 companies which failed to furnish financial data.

³ Exclusive of 18 companies which failed to furnish financial data.

⁴ Exclusive of 2 part-time companies.

A principal disturbing factor in all comparisons, based upon the total income or the total expenses, is the inclusion of the income and expenses incident to the operation of electric light and power plants. As previously explained, there is an increasing tendency among railway companies to enter the field formerly occupied exclusively by the central light and power stations. This new branch of the industry necessarily increases the proportion of income and expense that is not identified with the operation of the road, and therefore vitiates, to a certain extent, averages based on the miles of track, the car mile, or the passengers carried. If the proportion of the total income derived from the sale of current and the proportion of the total expenses incident to the generation of such current had remained unchanged in the interval between 1902 and 1907, the averages for the different years would at least be based on similar factors and would hence indicate the changes. This, however, is not the case, because the income from the sale of current formed only 3.1 per cent of the total operating earnings reported for 1902 as against 4.8 per cent for 1907.

Though these percentages are small, the amounts involved are large and their exclusion has a decided effect upon the calculation of average earnings per mile of track and per car mile. Thus, as may be calculated from the statistics in Table 133, the exclusion of income from sale of current results in reducing the figure for earnings per mile of track by \$590 in 1907 as compared with \$347 in 1902; and the figure for earnings per car mile by 1.25 cents in 1907 as compared with seven-tenths of 1 cent in 1902.

The operating earnings per unit, exclusive of income from sale of current, as given in Table 133, should not be confused with the averages for the group of companies classified as "Without commercial lighting" in Table 134. In computing the former averages, all income derived from the sale of current has been eliminated, while the total upon which the latter averages are based included a considerable amount of income derived from incidental sales of current by companies which could not be considered as engaged in regular light and power business.

TABLE 135.—GENERAL RESULTS OF OPERATION OF COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

UNIT.	Total, all companies.	CLASSIFICATION GROUP.				
		Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of companies.....	930	6	933	50	100	780
Per cent ratio of operating expenses to operating earnings.....	60.1	44.7	61.5	58.0	60.7	60.2
Operating earnings per mile of track, total.....	\$12,268.00	\$80,727.00	\$11,414.00	\$5,237.00	\$2,509.00	\$13,863.00
Operating earnings per mile of track, exclusive of income from sale of current.....	11,678.00	80,471.00	10,821.00	5,020.00	2,502.00	13,188.00
Operating earnings per car mile, total.....	0.2307	0.2358	0.2620	0.2728	0.1653	0.2593
Operating earnings per car mile, exclusive of income from sale of current.....	0.2472	0.2351	0.2484	0.2014	0.1748	0.2467
Operating expenses per car mile, total.....	0.1561	0.1053	0.1610	0.1341	0.1334	0.1560
Power-plant expenses per car mile.....	0.0273	0.0230	0.0277	0.0359	0.0351	0.0267
Expenses for operation of cars per car mile.....	0.0824	0.0405	0.0640	0.0545	0.0300	0.0631
Passenger earnings per fare passenger.....	0.0515	0.0497	0.0517	0.0640	0.0527	0.0501
Operating expenses per fare passenger.....	0.0339	0.0238	0.0348	0.0557	0.0464	0.0320
Net earnings per mile of track.....	4,895.00	44,673.00	4,400.00	2,201.00	484.00	5,520.00

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.² Includes the statistics for the few railways not operated by electricity.³ Exclusive of 6 companies which failed to furnish financial data.

Earnings per mile of track.—The averages based on totals from which earnings from the sale of current are excluded are undoubtedly the correct ones to be associated with the operation of the railways. On this basis the operating earnings per mile of track for 1907 show a substantial increase over those for 1902, though this increase is not general. In the classification according to size of companies the Classes A and B, representing the largest companies, show a decided decrease in the earnings per mile of track, while the three classes representing smaller companies show an increase. The amounts of these increases and decreases are shown in Table 136, in which the distinction is also made between total operating earnings of the companies and their operating earnings, exclusive of income from the sale of current.

The decrease in earnings per mile of track shown for Classes A and B is due primarily to the proportionately large increase in track. The trackage reported by companies in these classes in 1907 was 87.7 per cent greater than the trackage reported by companies of the same income classes in 1902, compared with an increase of only 74.8 per cent in earnings, exclusive of sale of current. This great increase in trackage is most marked for Class B, rising to 106.2 per cent, with an increase in earnings, exclusive of sale of current, of 74.1 per cent. The extension of trackage falling within the statistics of these classes was larger in districts of low-traffic density. The largest interurban lines, many of which were new companies in 1907, fall in Classes A and B.

It should be remembered also that Classes A and B include those large companies reporting deficits (discussed on p. 123), whose earnings constituted about 16 per cent of the earnings of all companies.

It is to be noted that these comparisons are comparisons of classes rather than of companies. A detailed study would show that many companies which reported at both censuses and are included in

Class A or B for both years show increased earnings per mile of track.

TABLE 136.—Average earnings, expenses, and net earnings per mile of track, of companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	1907	1902	Increase.	Decrease.
Total, all companies:				
Operating earnings, total.....	\$12,268	\$11,152	\$1,116	
Operating earnings, exclusive of income from sale of current.....	11,678	10,805	873	
Operating expenses.....	7,372	6,411	961	
Net earnings.....	4,895	4,741	154	
Class A:				
Operating earnings, total.....	19,287	19,935		648
Operating earnings, exclusive of income from sale of current.....	18,798	19,481		683
Operating expenses.....	11,256	10,915	341	
Net earnings.....	8,032	9,020		988
Class B:				
Operating earnings, total.....	8,345	9,651		1,306
Operating earnings, exclusive of income from sale of current.....	7,638	9,282		1,644
Operating expenses.....	5,040	5,570		490
Net earnings.....	3,265	4,082		817
Class C:				
Operating earnings, total.....	7,636	7,166	470	
Operating earnings, exclusive of income from sale of current.....	6,047	6,816	131	
Operating expenses.....	4,819	4,292	527	
Net earnings.....	2,817	2,874		57
Class D:				
Operating earnings, total.....	6,467	5,612	855	
Operating earnings, exclusive of income from sale of current.....	5,548	5,376	212	
Operating expenses.....	4,143	3,739	404	
Net earnings.....	2,324	2,073	251	
Class E:				
Operating earnings, total.....	4,132	3,663	469	
Operating earnings, exclusive of income from sale of current.....	3,548	3,241	307	
Operating expenses.....	2,953	2,805	148	
Net earnings.....	1,159	1,069	90	

Of the 6 elevated and subway companies for which average earnings are shown in Table 135, 5 are included in Class A and 1 in Class B, and as the earnings and expenses per mile of track are very large for these companies, they necessarily have a strongly marked effect on the averages for those classes. The group of "Electric elevated and subway railways" is made up of the elevated and subway systems of New York and Chicago, on which the traffic is very dense, and which, as compared with other systems, have proportionately

fewer miles of track. The result is that the average earnings per mile of track for the group (\$80,727) are much larger than for any of the other groups of companies shown in Table 135. Consolidations, extensions, the introduction of subways, and other changes render it impossible to make a direct comparison of the statistics for the same companies in 1907 and 1902. The 5 steam and electric elevated roads for which separate totals were given at the earlier census are, however, included in the group of elevated and subway systems for 1907, which, in addition, includes the Brooklyn Union Elevated Railroad. With this exception, virtually the same systems are included in the two groups, and the figures for both are therefore presented in Table 137.

TABLE 137.—General results of operation of elevated and subway railways: 1907 and 1902.

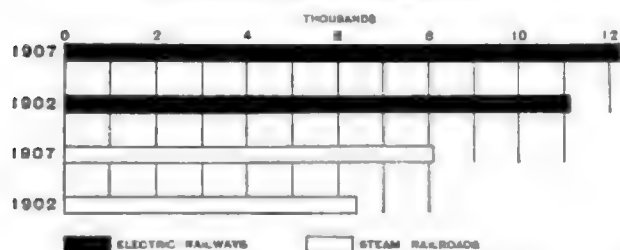
UNIT.	Electric elevated and subway railways: 1907. ¹	Steam and electric elevated railways: 1902. ²
Number of companies.....	6	5
Per cent ratio of operating expenses to earnings.....	44.7	49.7
Operating earnings per mile of track.....	\$80,727.00	\$71,880.00
Operating earnings per car mile.....	0.2356	0.1960
Operating expenses per car mile, total.....	0.1053	0.0975
Power-plant expenses per car mile.....	0.0230	0.0232
Expenses for operation of cars per car mile.....	0.0823	0.0743
Passenger earnings per fare passenger.....	0.0197	0.0508
Operating expenses per fare passenger.....	0.0238	0.0259
Net earnings per mile of track.....	44,673.00	36,151.00

¹ Includes Interborough Rapid Transit Co. and Brooklyn Union Elevated R. R. Co., in New York, N. Y., and South Side Elevated R. R. Co., Northwestern Elevated R. R. Co., Chicago, and Oak Park Elevated R. R. Co., and Metropolitan West Side Elevated Ry. Co., in Chicago, Ill.; but does not include the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes Manhattan Ry. Co., in New York, N. Y., and Northwestern Elevated R. R. Co., South Side Elevated R. R. Co., Metropolitan West Side Elevated Ry. Co., and Lake Street Elevated R. R. Co., in Chicago, Ill.; but does not include the mixed elevated, subway, and surface system in Boston, Mass.

While, as suggested, the inclusion of another railway in the statistics for 1907, the introduction of the subway in New York City, and other changes necessarily affect the financial returns for that year as compared with those for 1902, the averages roughly indicate the conditions for this type of railways in New York City and Chicago during the two census years.

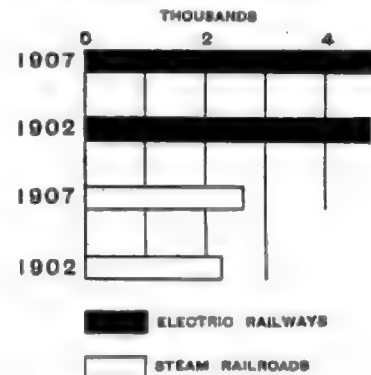
DIAGRAM 5.—Operating earnings per mile of track, electric railways and steam railroads: 1907 and 1902.



Only slight changes are shown in the majority of the averages in Table 137, but there was a decided de-

crease in the ratio of operating expenses to earnings and decided increases in the operating and the net earnings per mile of track.

DIAGRAM 6.—Net earnings per mile of track, electric railways and steam railroads: 1907 and 1902.



The freight and express business is virtually a new department of activity for street and electric railways. The proportion between the expenses incident to this new branch of activity and the income derived from it can not be determined, but the service has added somewhat to operating earnings and should be kept in mind in considering all averages in which it has exercised an influence.

TABLE 138.—Combined freight and express earnings per mile of track, by groups of companies: 1907 and 1902.

CLASSIFICATION GROUP.	1907	1902	Increase.
Total, all companies.....	\$199	\$65	\$134
Income from railway operations:			
A. \$1,000,000 and over.....	159	37	122
B. \$500,000 but less than \$1,000,000.....	265	34	231
C. \$250,000 but less than \$500,000.....	301	119	182
D. \$100,000 but less than \$250,000.....	249	73	176
E. Less than \$100,000.....	141	58	83
Kind of system and character of service:			
Electric elevated and subway railways.....	76	(3)	.....
Electric surface railways.....	201	(3)	.....
Selected interurban lines.....	333	(3)	.....
Selected small urban roads.....	146	(3)	.....
All other railway companies.....	174	(3)	.....

¹ This classification not made for 1902.

There were 454 companies in 1907 and 265 in 1902 that reported earnings from either freight or express business or both. It was impracticable, however, to ascertain the number of miles of track over which freight or express matter was carried, and therefore the total trackage has been used in all cases as the divisor in computing the average earnings from this business. The average for all companies was more than three times as great in 1907 as in 1902. The largest averages at both censuses are shown for income Class C, which is composed of the medium-sized companies, and for the selected interurban roads. While the amounts are not large, as compared with the earnings

from passenger service, the increases are significant of the development of this branch of business.

Earnings per car mile.—It is noticeable that every average for which the car mile is a standard shows an increase in 1907 as compared with 1902.

The inclusion of the earnings from the sale of current necessarily increases the earnings per car mile, but its elimination from the computations for both censuses confines the averages almost exclusively to the earnings resulting directly from the operation of the cars. As shown by Table 133, the averages at both censuses increased progressively, from that shown for the smaller companies to that for the group of largest companies; with the single exception, that for Class B, the average in 1907 was slightly less than that for the next smaller class. In other words, it would seem that cars operated by the smaller companies earn, on the average, a smaller amount of money in running a given distance than do those of the larger companies. An exception to this rule occurs in the case of the group of electric elevated and subway systems shown in Table 135, for which the reported earnings per car mile were only \$0.2358.

Earnings per passenger.—The fare passenger is a third standard unit of measurement. The average earnings per passenger for 1907 were slightly in excess of those for 1902 for all companies taken together and for each of the 5 income classes, as shown in Table 133. The urban traffic is the predominating factor in determining this average, and it is not surprising to find the average for all companies to be about 5 cents, the

almost universal fare of the urban passenger. Variations from this general average are due to conditions heretofore described, for which proper allowance can not be made in totals that include statistics for a large number of companies. The effect on the statistics of the long rides on the interurban lines is shown by the larger average, about 8½ cents, reported for the selected interurban lines in Table 135. The smallest average in 1907, 4.97 cents, is shown for the group of electric elevated and subway railways.¹

Expenses and net earnings per unit.—Comparisons of average earnings per unit of measurement are significant in themselves, but they are much more so when they are brought into relation with the average expenses for the same units. In some respects comparisons of the averages of expenses and earnings, respectively, based on different units of measurement, as given in Tables 133, 134, and 135, convey a more definite idea of actual conditions than can be obtained from a comparison of total operating expenses and total operating earnings. Unfortunately it is impossible to eliminate the expenses incident to the generation of current for sale, so as to make the statistics for operating expenses comparable with those relating to income from operation exclusive of that from the sale of current, as shown in Table 133. This difficulty is overcome in part by giving separate averages for those companies that are not engaged in the regular light and power business, as shown in Tables 134 and 139.

¹ See also p. 92.

TABLE 139.—AVERAGE EARNINGS, EXPENSES, AND NET EARNINGS PER UNIT, OF COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

UNIT.	TOTAL, ALL COMPANIES.		CLASSIFICATION GROUP.					
			Without commercial lighting. ¹		With commercial lighting.		Part-time.	
	1907	1902	1907	1902	1907	1902	1907	1902
Per mile of track:								
Operating earnings, total.....	\$12,298.00	\$11,182.00	\$13,178.00	\$11,794.00	\$10,022.00	\$8,978.00	\$1,558.00	\$2,078.00
Operating earnings, exclusive of income from sale of current.....	11,678.00	10,905.00	13,045.00	11,731.00	7,820.00	6,388.00	1,495.00	2,004.00
Operating expenses.....	7,372.00	6,411.00	7,900.00	6,772.00	6,088.00	5,217.00	1,118.00	1,732.00
Net earnings.....	4,995.00	4,741.00	5,208.00	5,022.00	3,983.00	3,701.00	430.00	1,347.00
Per car mile:								
Operating earnings, total.....	0.2897	0.2187	0.2819	0.2157	0.3068	0.2597	0.2361	0.1901
Operating earnings, exclusive of income from sale of current.....	0.2472	0.2119	0.2463	0.2145	0.2346	0.1839	0.2250	0.1864
Operating expenses, total.....	0.1501	0.1257	0.1512	0.1239	0.1859	0.1509	0.1895	0.1105
Power-plant expenses.....	0.0273	0.0204	0.0210	0.0190	0.0345	0.0263	0.0531	0.0250
Expenses for operation of cars.....	0.0824	0.0552	0.0931	0.0500	0.0566	0.0475	0.0566	0.0417
Net earnings.....	0.1080	0.0930	0.1007	0.0918	0.1226	0.1069	0.0906	0.0796
Per fare passenger:								
Operating earnings, total.....	0.0563	0.0523	0.0536	0.0508	0.0756	0.0723	0.1016	0.0656
Passenger earnings.....	0.0515	0.0494	0.0510	0.0493	0.0542	0.0493	0.0919	0.0621
All other earnings.....	0.0049	0.0029	0.0025	0.0015	0.0213	0.0229	0.0096	0.0035
Operating expenses.....	0.0339	0.0301	0.0321	0.0292	0.0444	0.0420	0.0729	0.0381
Net earnings.....	0.0225	0.0223	0.0214	0.0216	0.0300	0.0303	0.0287	0.0275

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

The income from the sale of current for the census year 1907 amounted to \$20,093,302, and large amounts ranging from \$2,225,519 to \$7,538,308 are shown for each of the five income classes (Table 107). The in-

clusion of the expenses incident to this income necessarily increases the average expense per mile of track, per car mile, and per passenger. As these expenses form a varying proportion of the total expenses at the

different censuses, a comparison based on them is not a true indication of the increase or decrease in the average expense of conducting traffic. They are, however, included by railway companies in many of their calculations and are so included in the majority of the tables in this report.

The operating earnings and expenses per mile of track and the net earnings per mile of track for companies, classified according to size, are given together in Table 136, which shows that for all operating companies the average net earnings for 1907 exceeded the

average for 1902 by \$154. For each of the three groups containing the largest companies, however, this average decreased in the same period, the decrease for Class A, which amounted to \$988, being particularly noticeable.

The increase from 1902 to 1907 in the net earnings per mile of track, shown in Table 139, for companies classified as "Without commercial lighting" (\$246) was larger than for the group classified as "With commercial lighting" (\$222).

TABLE 140.—AVERAGE EARNINGS, EXPENSES, AND NET EARNINGS PER UNIT, BY GROUPS OF COMPANIES: 1907.

UNIT.	Total, all companies.	CLASSIFICATION GROUP.			
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.
Per mile of track:					
Operating earnings, total.....	\$12,268.00	\$80,727.00	\$11,414.00	\$6,237.00	\$2,508.00
Operating earnings, exclusive of income from sale of current.....	11,678.00	80,471.00	10,821.00	5,020.00	2,502.00
Operating expenses.....	7,372.00	36,055.00	7,015.00	8,036.00	2,025.00
Net earnings.....	4,896.00	44,673.00	4,400.00	2,201.00	484.00
Per car mile:					
Operating earnings, total.....	0.2597	0.2358	0.2620	0.2728	0.1653
Operating earnings, exclusive of income from sale of current.....	0.2472	0.2351	0.2444	0.2614	0.1648
Operating expenses, total.....	0.1561	0.1053	0.1610	0.1581	0.1334
Power-plant expenses.....	0.0273	0.0230	0.0277	0.0359	0.0351
Expenses for operation of cars.....	0.0024	0.0405	0.0646	0.0645	0.0506
Net earnings.....	0.1036	0.1306	0.1010	0.1147	0.0319
Per fare passenger:					
Operating earnings, total.....	0.0563	0.0533	0.0566	0.0981	0.0075
Passenger earnings.....	0.0515	0.0497	0.0517	0.0840	0.0327
All other earnings.....	0.0049	0.0036	0.0050	0.0121	0.0048
Operating expenses.....	0.0339	0.0238	0.0348	0.0357	0.0464
Net earnings.....	0.0225	0.0295	0.0218	0.0604	0.0111

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

The 6 elevated and subway railways reported the largest net earnings per mile of track, \$44,673, while the selected small urban roads naturally show, on the same basis, the smallest averages for expenses and earnings and the smallest net earnings per mile of track, \$484.

As the majority of the 933 "Electric surface railways" are operated under fairly similar conditions, the averages for this group are not affected by what may be termed the unusual or abnormal conditions under which the elevated and subway and long interurban lines are operated. The group includes a few unimportant systems which are not operated by electricity, but the amounts reported by them are not large enough to affect appreciably the averages. These averages are fairly comparable with those for the 725 electric surface roads for which the statistics were shown separately at the census of 1902. In 1907 the operating earnings, operating expenses, and net earnings per mile of track for this group were \$11,414, \$7,015, and \$4,400, respectively, as compared with \$10,503, \$6,087, and \$4,416, the corresponding averages in 1902. A more satisfactory comparison, however, results from the further subdivision of the electric roads reported for both censuses, which is shown in Table 139.

The operating earnings and expenses per car mile given in Table 141 show the effect upon this unit of measurement of the various factors before referred to.

The net earnings per car mile show an increase in 1907 as compared with 1902 for all of the classes of companies; the greatest increase is shown for Class D and the smallest for Class A. The association of light and power business with railway operations necessarily increases the power-plant expenses. As shown by Table 139 the cost of power per car mile in 1907 was relatively greater (3.45 cents) for companies with light plants than for those without (2.6 cents).

The use of the number of passengers as a divisor gives the smallest unit of measurement to determine the result of railway operations. The reduction to this small unit enables a concrete statement to be made from which general conditions can be determined by a glance at Table 142.

The averages based upon the fare passenger also range higher for 1907 than for 1902 (except in the case of the average net earnings for Class A), owing in part at least to the contraction in the number reported, as explained on page 170. The operating expenses of passenger traffic can not be segregated from the expenses of other traffic, freight, express, etc., and hence it is necessary to consider all expense from railway

operations. The amounts on which the average for "All other" earnings is based include income from chartered cars, freight, mail and express business, and sale of current; and all other miscellaneous earnings from operation. The averages for the companies that do and for those that do not engage in commercial lighting given in Table 139 are in some respects more satisfactory than those in Table 141, but they do not cover the entire field.

TABLE 141.—Average earnings, expenses, and net earnings per car mile of companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	1907 (cents).	1902 (cents).	Increase (cents).
Total, all companies:			
Operating earnings, total.....	25.97	21.87	4.10
Operating earnings, exclusive of income from sale of current.....	24.72	21.19	3.53
Operating expenses, total.....	15.61	12.57	3.04
Power-plant expenses.....	2.73	2.04	0.69
Expenses for operation of cars.....	6.24	5.52	0.72
Net earnings.....	10.36	9.30	1.06
Class A:			
Operating earnings, total.....	26.25	22.92	3.33
Operating earnings, exclusive of income from sale of current.....	25.58	22.63	2.95
Operating expenses, total.....	16.32	12.55	2.77
Power-plant expenses.....	2.40	1.79	0.61
Expenses for operation of cars.....	6.47	5.83	0.64
Net earnings.....	10.93	10.37	0.56
Class B:			
Operating earnings, total.....	24.81	21.12	3.69
Operating earnings, exclusive of income from sale of current.....	23.30	20.32	2.98
Operating expenses, total.....	15.10	12.19	2.91
Power-plant expenses.....	2.97	1.93	0.94
Expenses for operation of cars.....	5.87	5.35	0.52
Net earnings.....	9.71	8.93	0.78
Class C:			
Operating earnings, total.....	26.88	21.30	5.58
Operating earnings, exclusive of income from sale of current.....	24.46	20.26	4.20
Operating expenses, total.....	16.97	12.76	4.21
Power-plant expenses.....	3.33	2.06	1.25
Expenses for operation of cars.....	6.03	5.24	0.79
Net earnings.....	9.92	8.54	1.38
Class D:			
Operating earnings, total.....	26.34	19.68	6.66
Operating earnings, exclusive of income from sale of current.....	22.76	16.20	4.56
Operating expenses, total.....	16.97	12.66	4.21
Power-plant expenses.....	3.68	2.42	1.16
Expenses for operation of cars.....	5.62	4.93	0.69
Net earnings.....	9.47	7.02	2.45
Class E:			
Operating earnings, total.....	23.00	18.12	4.88
Operating earnings, exclusive of income from sale of current.....	19.65	16.03	3.62
Operating expenses, total.....	16.58	12.64	3.74
Power-plant expenses.....	4.45	3.27	1.18
Expenses for operation of cars.....	5.22	4.79	0.83
Net earnings.....	6.42	5.29	1.13

The net earnings per fare passenger for all railways in 1907 were two-hundredths of a cent greater than the average for 1902. The greatest gain is shown for Class D, the smallest for Class E; while Class A shows an actual decrease of six-hundredths of a cent. It will be noted that in 1907 the average passenger earnings per fare passenger for railways operating part of the year was over 9 cents, a much larger average than any shown in Table 142. The explanation is found in the fact that there are included in this group several large interurban roads which began operations during 1907.

TABLE 142.—Average earnings, expenses, and net earnings per fare passenger of companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	1907 (cents).	1902 (cents).	Increase (cents).
Total, all companies:			
Operating earnings, total.....	5.63	5.23	0.40
Passenger.....	5.15	4.94	0.21
All other.....	0.49	0.29	0.20
Operating expenses.....	3.39	3.01	0.38
Net earnings.....	2.25	2.23	0.02
Class A:			
Operating earnings, total.....	5.28	5.00	0.28
Passenger.....	4.98	4.84	0.15
All other.....	0.30	0.16	0.14
Operating expenses.....	3.06	2.76	0.30
Net earnings.....	2.20	2.24	¹ 0.06
Class B:			
Operating earnings, total.....	6.28	5.29	0.97
Passenger.....	5.57	4.98	0.59
All other.....	0.69	0.31	0.38
Operating expenses.....	3.81	3.05	0.76
Net earnings.....	2.45	2.24	0.21
Class C:			
Operating earnings, total.....	6.90	5.94	0.96
Passenger.....	5.85	5.40	0.45
All other.....	1.05	0.55	0.50
Operating expenses.....	4.35	3.56	0.79
Net earnings.....	2.54	2.38	0.16
Class D:			
Operating earnings, total.....	7.08	5.97	1.06
Passenger.....	5.65	5.31	0.34
All other.....	1.38	0.66	0.72
Operating expenses.....	4.50	3.84	0.66
Net earnings.....	2.53	2.13	0.40
Class E:			
Operating earnings, total.....	6.93	6.16	0.77
Passenger.....	5.54	5.14	0.40
All other.....	1.38	1.02	0.37
Operating expenses.....	5.00	4.36	0.64
Net earnings.....	1.94	1.80	0.14

¹ Decrease.

Operating ratio.—A comparison of the per cent ratio of operating expenses to operating earnings (the operating ratio), for the different groups of companies, indicates to some extent the effect of the efficiency of management and the density of traffic upon their financial showing. The ratio, however, is influenced by many other conditions, all of which should be given due weight in making comparisons.

The operating ratio is a measure often used in comparing railway companies, especially with regard to efficiency of management and conditions of operation. In all considerations of this character, however, it must be remembered that the operating ratio depends upon two factors, expenses and earnings, and that a high or low operating ratio may point either to high or low expenses or to low or high earnings. Thus stated the proposition seems almost too obvious; yet there is the greatest danger that this obvious truth may escape consideration, and that the operating ratio may actually be regarded as determined solely by the factor of expense. As a rule, the operating ratio is lower in the larger cities than in small cities, owing largely to the fact that the density of traffic varies more or less directly with the density of population. As to expenses, it is undoubtedly true that wages per man range higher in the larger cities than in small cities or in rural dis-

tricts, and that interruptions to traffic and obstructions retarding speed on surface lines are more prevalent in the larger cities, all of which circumstances tend to increase the average operating expense; but the effect of these conditions upon the operating ratio is offset by the larger number of passengers carried per car mile and the greater amount of passenger income, due to the greater density of traffic. Moreover, the power plants of companies in the larger cities are much more generally equipped with appliances for lessening the cost of power than are the plants of companies in smaller communities, so that they are able to produce power at a low figure of expense per unit.

Extended comparisons of operating ratios are always difficult and often dangerous. Among the factors that tend to vitiate such comparisons in the census statistics is that of the nonrailway interests of some railway companies, such as the sale of electric current, the operation of pleasure resorts, etc. Again, of the railway business itself, freight, mail, and express are prominent elements in some cases and absent in others. Inter-urban railways are in many respects rather to be classed with steam railroads than with street and electric railways; and the conditions under which elevated and subway roads operate are so different from those under which surface lines operate that comparisons must be made only for limited purposes, and then with the greatest caution.

The following statement shows the operating ratios for all operating railway companies, by geographic divisions, for 1907 and 1902:

Operating ratio of operating companies, by geographic divisions: 1907 and 1902.

DIVISION.	OPERATING RATIO.	
	1907	1902
United States.....	60.1	57.5
North Atlantic.....	60.0	58.4
South Atlantic.....	57.1	61.6
North Central.....	59.0	56.3
South Central.....	62.6	58.7
Western.....	66.1	57.4

It should be remembered that the expense factor of the operating ratio does not include taxes, which are included with fixed charges in the census statistics.

It is evident that on the whole the forces that tend to raise the operating ratio outweighed the opposing factors in the census interval 1902 to 1907. The ratio increased for the United States as a whole and for every one of the geographic divisions. The largest increase occurred in the Western division and the smallest, in the North Atlantic. This general increase of the ratio is probably to be explained by the changed conditions both of expense and of earnings. On the one hand, the period was one of rapid development in new territory of low traffic density, whether by new lines in the

West and South and in little populous places in the other divisions, or by urban and interurban extensions. On the other hand, the period was one in which prices were steadily rising, raising the cost of materials and of labor.

The following statement, which shows the operating ratios in 1907 and 1902 for all the income classes of companies, is a further illustration of the fact that there has been a general increase in the operating ratio.

Operating ratio of companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	OPERATING RATIO.	
	1907	1902
Total, all companies.....	60.1	57.5
Class A.....	58.4	54.8
Class B.....	60.9	57.7
Class C.....	63.1	60.2
Class D.....	64.1	64.3
Class E.....	72.1	70.8

With the exception of Class D, for which the percentage was slightly smaller in 1907 than in 1902, there was a decided increase in the ratios at the later census as compared with those for the earlier census.

At each census the operating ratios decreased progressively from a maximum for the smallest companies, those belonging to Class E, to a minimum for the largest companies, those belonging to Class A. In 1907 the high ratio for Class E is in part due to the fact that the roads operated by animal power all fall in this group, and also to the fact that of the 55 roads operated only for a portion of the year, 52 belong to this class, the other 3 belonging to Class D. The general decrease in operating ratio with increase of the business of the companies is probably due to the fact that the gradation of the companies in the various income groups corresponds roughly with the gradation of population of the areas in which they operate. As has been explained, increasing density of population generally means, on the one hand, increasing density of traffic, with resultant increase of earnings, and, on the other hand, the economies incident to large-scale organization of the work of operation.

The per cent ratio of net earnings from operation to total operating earnings is very obviously the complement of the operating ratio, and therefore just as the operating ratio regularly decreases, the net-earnings ratio regularly increases for the companies from Class E to Class A.

In order that further comparisons may be made, subject to the caution already given, further statements are presented, giving comparative exhibits of operating ratios of companies reporting net income and net deficits, respectively, and of companies "Without commercial lighting," "With commercial lighting," and "Part-time" companies.

Operating ratio of companies reporting net income and net deficit: 1907 and 1902.

CLASSIFICATION GROUP.	OPERATING RATIO.	
	1907.	1902.
Total, all companies.....	60.1	57.5
Companies reporting net income.....	58.8	56.0
Companies reporting net deficit.....	64.7	67.5

Operating ratio of companies with and without commercial lighting and of part-time companies: 1907 and 1902.

CLASSIFICATION GROUP.	OPERATING RATIO.	
	1907.	1902.
Total, all companies.....	60.1	57.5
Without commercial lighting.....	60.0	57.4
With commercial lighting.....	60.3	58.1
Part-time companies.....	71.8	58.1

At the census of 1902 and again at the census of 1907 an analysis of companies was made on the basis of their operating ratios. The following table shows the number of companies that had operating ratios falling

within specified limits at the two censuses, and the absolute and relative increase in the number of companies reported for the respective ratio groups:

TABLE 143.—Distribution of operating companies with respect to operating ratio: 1907 and 1902.

OPERATING RATIO (PER CENT).	NUMBER OF COMPANIES.		Increase (number).
	1907.	1902.	
Total, all companies.....	239	199	140
Under 50.....	79	73	5
50 but under 60.....	195	109	26
60 but under 70.....	263	216	47
70 but under 80.....	160	121	39
80 but under 90.....	109	82	17
90 and over.....	124	128	6

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 18 companies which failed to furnish this information.

The group of companies reporting an operating ratio of 60 per cent but under 70 contained the largest number of companies in any one group at both censuses, and it also showed the largest numerical increase.

Table 144 carries the analysis further and presents the distribution of the operating companies among both the income and operating ratio groups for 1907.

TABLE 144.—DISTRIBUTION OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS, WITH RESPECT TO OPERATING RATIO: 1907.

OPERATING RATIO (PER CENT).	Total, all companies.	COMPANIES WITH INCOME FROM RAILWAY OPERATIONS OF—				
		\$1,000,000 and over. (A)	\$500,000 but less than \$1,000,000. (B)	\$250,000 but less than \$500,000. (C)	\$100,000 but less than \$250,000. (D)	Less than \$100,000. (E)
Total.....	239	76	50	80	182	551
Under 50.....	78	12	7	3	16	40
50 but under 60.....	195	29	17	30	48	71
60 but under 70.....	263	21	18	28	61	135
70 but under 80.....	160	10	6	14	28	92
80 but under 90.....	109	4	2	4	10	89
90 and over.....	124			1	9	124

¹ Exclusive of 6 companies which failed to furnish this information.

Of the 243 companies with an operating ratio of 80 per cent or over, 213 are of Class E and include most of the roads operated by animal power or for part of the year only, while 232 out of the 243 belong to Classes D and E.

The correlation between the magnitude of a company's operations and its operating ratio is closer than is apparent from an examination of the absolute numbers given in the table. When, however, the numbers of companies in the income-class columns are taken cumulatively from top to bottom and the sums expressed as cumulative percentages of the totals, the correlation is shown to be almost complete.

OPERATING RATIO (PER CENT).	PER CENT OF COMPANIES REPORTING SPECIFIED RATIO IN INCOME CLASS—				
	A	B	C	D	E
Under 50.....	16	14	4	9	7
Under 60.....	54	48	41	35	20
Under 70.....	82	84	76	69	45
Under 80.....	95	96	94	90	61
Under 90.....	100	100	99	95	77

The operating ratios for companies, classified according to kind of system and character of service, are given for 1907 in the following statement:

Operating ratio of companies, classified according to kind of system and character of service: 1907.

CLASSIFICATION GROUP.	Operating ratio.
Total, all companies.....	60.1
Kind of system:	
Electric elevated and subway railways.....	44.7
Electric surface railways.....	61.5
Character of service:	
Selected interurban lines.....	58.0
Selected small urban roads.....	80.7
All other railways.....	60.2

The electric elevated and subway lines, which show the lowest operating ratio of any class or group, are operated under conditions of maximum traffic density, and, on the other hand, the selected small urban roads, which show the highest operating ratio, are operated under conditions of minimum traffic density.

The distribution of these same classes of operating companies among the operating ratio groups is given in Table 145.

TABLE 145.—Distribution of operating companies, classified according to kind of system and character of service, with respect to operating ratio: 1907.

OPERATING RATIO (PER CENT).	Total, all companies.	COMPANIES ACCORDING TO KIND OF SYSTEM.		COMPANIES ACCORDING TO CHARACTER OF SERVICE.		
		Electric elevated and subway railways. ¹	Electric surface railways. ²	Selected interurban lines.	Selected small urban roads.	All other railways.
Total.....	939	6	933	50	100	789
Under 50.....	78	3	75	11	4	71
50 but under 60.....	195	1	194	25	14	156
60 but under 70.....	263	2	261	15	18	230
70 but under 80.....	160		160	6	14	140
80 but under 90.....	109		109	1	18	90
90 and over.....	134		134		32	102

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Exclusive of 6 companies which failed to furnish this information.

All the elevated and subway railways and over four-fifths of the selected interurban lines fall in the groups with an operating ratio of less than 70 per cent, while nearly two-thirds of the selected small urban roads have an operating ratio of 70 per cent or over.

Although the operating ratio varies from company to company within every state, yet the ratio of operating expenses to operating earnings of all the railways of a state regarded as a single system may perhaps in most cases be taken to represent a typical ratio for the state. These state ratios are included in Table 104, which gives the condensed income account of operating companies, grouped by states and geographic divisions; but for comparative purposes they are reproduced in the following statement. The states are ranked according to their operating ratios at the respective censuses. The ratio for the United States as a whole is calculated from elements so diverse that it has little statistical value, except as a standard of reference for the state averages.

Operating ratio, by states: 1907 and 1902.

1907		1902	
STATE.	Operating ratio.	STATE.	Operating ratio.
Arizona.....	83.8	Arizona.....	84.7
New Hampshire.....	82.3	Vermont.....	80.7
Nevada.....	79.9	New Hampshire.....	79.3
Montana.....	72.6	Mississippi.....	74.3
Vermont.....	71.1	Montana.....	74.2
California.....	70.5	North Carolina.....	73.7
Florida.....	70.0	Maine.....	73.1
New Mexico.....	69.7	Delaware.....	71.5
Massachusetts.....	68.5	New Mexico.....	69.5
Delaware.....	68.3	Massachusetts.....	69.4
Alabama.....	67.6	Kansas.....	69.4
Connecticut.....	66.8	South Carolina.....	66.7
Iowa.....	65.8	Virginia.....	65.0
Maine.....	65.5	Connecticut.....	64.7
Mississippi.....	65.4	Texas.....	64.2
North Dakota.....	65.3	Florida.....	64.1
Washington.....	65.1	Rhode Island.....	63.8
Texas.....	63.7	Utah.....	63.6
Oklahoma.....	63.4	Oregon.....	62.7
Illinois.....	63.3	Washington.....	62.0
Virginia.....	63.3	Iowa.....	61.3
North Carolina.....	62.7	Idaho.....	60.9
Rhode Island.....	61.9	Louisiana.....	60.4
Idaho.....	61.8	West Virginia.....	59.2
Utah.....	61.5	Alabama.....	58.7
New Jersey.....	61.3	Colorado.....	58.4
Ohio.....	60.8	Illinois.....	58.4
West Virginia.....	60.1	Arkansas.....	58.2
United States.....	60.1	Indiana.....	58.2
Oregon.....	60.0	Tennessee.....	57.8
South Carolina.....	59.9	United States.....	57.5
Michigan.....	59.8	Nebraska.....	57.1
Louisiana.....	59.5	Missouri.....	56.8
Kentucky.....	59.2	New York.....	56.8
Pennsylvania.....	58.2	Michigan.....	56.3
New York.....	58.7	Ohio.....	55.1
Indiana.....	56.2	California.....	54.2
Arkansas.....	56.2	Kentucky.....	53.2
Georgia.....	55.4	New Jersey.....	53.1
Tennessee.....	54.8	District of Columbia.....	52.0
Kansas.....	53.8	Georgia.....	51.9
Missouri.....	53.8	Pennsylvania.....	51.5
District of Columbia.....	52.9	Wisconsin.....	51.1
Wisconsin.....	52.7	Maryland.....	47.2
South Dakota.....	52.5	Minnesota.....	46.1
Colorado.....	50.8		
Maryland.....	50.2		
Minnesota.....	50.0		
Nebraska.....	48.4		

The average for the United States as a whole shows an increase from 57.5 per cent in 1902 to 60.1 per cent in 1907, or an absolute increase of 2.6, while the range of the ratios or the difference between the maximum and the minimum ratio has contracted. In 1902 the difference between the lowest and the highest percentage was 38.6 and in 1907, 35.4, a contraction of range amounting to 3.2. Increases in operating ratios appear for 20 states and reductions for 24 of the states that reported railways at both censuses. In 1907, however, 21 of the states showed a ratio equal to or below the average for the United States, while in 1902 but 14 states showed a ratio below the average for the country as a whole. The increases predominate slightly in the states of the South Atlantic and North Central divisions, and reductions in the states of the North Atlantic, South Central, and Western divisions. The greatest increase in the operating ratio appears for California, from 54.2 per cent in 1902 to 70.5 per cent in 1907, a total increase of 16.3. This is probably accounted for by the San Francisco earthquake and fire of 1906, which destroyed a vast amount of railway property and made operating conditions in and about San Francisco abnormal throughout 1907, and also by the large development in the southern and northern parts of the state of interurban traffic, which carried with it a comparatively high operating ratio. The

other great changes in operating ratios are in the direction of reduction; thus Kansas shows a reduction of 15.6 and North Carolina a reduction of 11. These changes, however, tend to bring the ratios for the respective states into conformity with the general averages for the geographic divisions in which the states are situated.

Relation of operating ratio to density of traffic.—As

has been stated, one of the chief factors governing the ratio of operating expenses to operating earnings is density of traffic. A comparison of the number of fare passengers carried per mile of track, which indicates traffic density, with the operating ratios, brings out the fact that, as a rule, a decrease in the ratio accompanies an increase in traffic density.

TABLE 146.—DISTRIBUTION OF OPERATING COMPANIES ACCORDING TO FARE PASSENGERS PER MILE OF TRACK AND ACCORDING TO OPERATING RATIO: 1907.

FARE PASSENGERS PER MILE OF TRACK.	NUMBER OF COMPANIES REPORTING OPERATING RATIO.						
	Total.	Under 50 per cent.	50 per cent but under 60 per cent.	60 per cent but under 70 per cent.	70 per cent but under 80 per cent.	80 per cent but under 90 per cent.	90 per cent and over.
Total.....	1 935	77	195	263	160	109	134
Under 25,000.....	169	11	27	45	26	21	39
25,000 but under 50,000.....	134	9	21	22	22	26	34
50,000 but under 100,000.....	232	19	39	73	37	25	39
100,000 but under 200,000.....	263	17	61	83	53	30	20
200,000 but under 300,000.....	67	7	20	23	12	3	2
300,000 but under 400,000.....	32	8	11	8	5		
400,000 and over.....	11	6	16	9	6	4	

¹ Exclusive of 6 companies which failed to furnish this information and 1 freight road.

The fact must be borne in mind that companies vary greatly in operating conditions, some doing commercial lighting, some an interurban business, and others urban business with no outside interests. It will be observed that the companies with a low traffic density have, proportionately, the largest representation in the high ratio groups, while those with a high traffic density are, proportionately, the most numerous in the groups having low operating ratios. Thus the roads averaging fewer than 50,000 fare passengers per mile of track constituted 26 per cent of the companies with an operating ratio of less than 50 per cent in 1907, and 24.6 per cent, 25.5 per cent, 30 per cent, 43.1 per cent, and 54.5 per cent, respectively, of each successively higher ratio group; while, on the other hand, the roads carrying at least 300,000 fare passen-

gers per mile of track constituted 18.2 per cent of all roads with an operating ratio of less than 50 per cent, the percentages decreasing more or less uniformly for each successive ratio group until these roads formed but 3.7 per cent of those with an operating ratio of 80 per cent, but less than 90 per cent. For none of the roads reporting at least 300,000 fare passengers per mile operated was the ratio of operating expenses to operating earnings as high as 90 per cent.

For some purposes, especially from the point of view of the expense term of the operating ratio, the number of passengers per car mile is a better unit of measurement and comparison than the number of passengers per mile of track. Table 147 shows the distribution of companies, grouped on the basis of this unit and on the basis of their operating ratios.

TABLE 147.—DISTRIBUTION OF OPERATING COMPANIES ACCORDING TO FARE PASSENGERS PER CAR MILE AND ACCORDING TO OPERATING RATIO: 1907.

FARE PASSENGERS PER CAR MILE.	NUMBER OF COMPANIES REPORTING OPERATING RATIO.						
	Total.	Under 50 per cent.	50 per cent but under 60 per cent.	60 per cent but under 70 per cent.	70 per cent but under 80 per cent.	80 per cent but under 90 per cent.	90 per cent and over.
Total.....	1 935	77	195	263	160	109	134
Under 2.....	144	6	26	35	23	10	35
2 but under 3.....	164	11	34	27	30	22	35
3 but under 4.....	217	15	30	66	36	30	22
4 but under 5.....	202	15	56	67	37	11	16
5 but under 6.....	122	17	26	41	23	7	8
6 but under 7.....	37	4	10	10	6	4	2
7 and over.....	52	9	13	15	5	5	5

¹ Exclusive of 6 companies which failed to furnish this information and 1 freight road.

In this case, as in the preceding, the number of companies in the lower density classes (those having less than 3 passengers per car mile) is least proportionately in the group having an operating ratio of

less than 50 per cent, and greatest proportionately in the groups with the highest operating ratios; while in the case of groups with a high traffic density the number of companies is proportionately greater in the

groups with a lower operating ratio and smaller in those showing a high ratio.

The effect of density of traffic upon operating expenses appears also when the per cent ratios of operating expenses and deductions from income to total expenses are studied in connection with the number of passengers per mile of track. Of roads operating under conditions otherwise similar, those carrying a great number of passengers per mile of track report a relatively small amount for operating expenses, and a relatively large amount for fixed charges, as compared with roads of low traffic density. For roads operating in sparsely settled districts, the importance of the labor cost as a factor in the expenses is relatively greater, while the importance of the fixed charges is relatively less than for roads operating in densely populated districts. This is illustrated in Table 148, which shows the respective ratios of operating expenses and fixed charges to their total, for the various income classes of roads, and also the fare passengers per mile of track for these classes.

TABLE 148.—Complementary ratios of operating expenses and deductions from income, and passengers per mile of track, of companies, classified according to income from railway operations: 1907 and 1902.

CLASSIFICATION GROUP.	1907			1902		
	Fare passengers per mile of track.	Per cent of total expenses represented by—		Fare passengers per mile of track.	Per cent of total expenses represented by—	
		Operating expenses.	Deductions from income.		Operating expenses.	Deductions from income.
Total, all companies.....	216,522	64.5	35.5	212,217	64.7	35.3
Class A.....	361,701	63.0	37.0	399,088	61.8	38.2
Class B.....	133,370	64.8	35.2	182,541	67.1	32.9
Class C.....	112,476	68.4	31.6	125,507	69.1	30.9
Class D.....	91,371	60.2	39.8	97,767	71.4	28.6
Class E.....	59,741	72.7	27.3	59,790	75.2	24.8

VI.

BALANCE SHEET.

The balance sheets furnished to the Census Bureau are supposed to show the financial condition of the companies at the end of the year or other period covered by the reports. It was manifestly not within the province of the bureau to question the accuracy of these statements or to endeavor to ascertain whether the proper amounts had been reported for the assets and liabilities. Undoubtedly different methods of bookkeeping are reflected in the balance sheets, and it is probable that part of the assets recorded for some companies are of questionable value. It is seldom, however, that a company underestimates the value of its assets, and therefore the combination of the balance sheets for the different companies doubtless re-

sults in a much larger total than would be obtained from a conservative valuation of the properties.

There were 6 companies in 1907 and 20 in 1902 that failed to furnish balance sheets. The statements furnished by all the other companies are combined in Table 149.

TABLE 149.—Net balance sheet, by accounts, of operating and lessor companies combined: 1907 and 1902.

ACCOUNT	1907		1902	
	Amount.	Per cent of total.	Amount.	Per cent of total.
Number of companies.....	11,230		1967	
Assets, total.....	\$4,263,861,592	100.0	\$2,533,847,258	100.0
Cost of construction, equipment, and real estate.....	3,637,608,708	85.3	2,167,634,077	85.5
Stocks and bonds of other electric-railway companies.....	210,342,522	4.9	(1)	
Treasury stocks and bonds.....	27,553,501	0.6	(1)	
Other permanent investments.....	136,768,104	3.2	152,512,997	6.0
Cash on hand.....	28,456,137	0.6	28,021,854	1.1
Bills and accounts receivable.....	116,588,957	2.7	22,446,700	0.9
Supplies.....	20,811,380	0.7	10,610,928	0.4
Sundries.....	77,692,203	1.8	152,617,703	6.0
Liabilities, total.....	4,263,861,592	100.0	2,533,847,258	100.0
Capital stock.....	2,031,986,945	47.7	1,296,583,289	51.0
Funded debt.....	1,672,939,930	39.2	974,112,422	38.4
Real-estate mortgages.....	4,059,815	0.1	(3)	
Floating debt.....	278,927,067	6.5	(3)	
Reserves.....	27,222,471	0.6	(3)	
Bills and accounts payable.....	91,241,278	2.1	101,704,634	4.0
Interest due and accrued.....	25,317,196	0.6	14,497,650	0.6
Dividends due.....	3,966,390	0.1	2,543,824	0.1
Sundries.....	57,763,707	1.4	133,899,308	5.3
Net surplus.....	70,444,292	1.7	40,308,112	1.6
Cost of construction and equipment during the year.....	184,918,453		126,682,473	

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 20 companies which failed to furnish this information.

³ Not reported separately. Included in "Other permanent investments."

⁴ Not reported.

⁵ Not reported separately. Probably included in "Bills and accounts payable" and "Sundries."

The very general adoption of the standard classification of accounts and form of report prescribed by the American Street and Interurban Railway Accountants' Association has tended toward uniformity in methods of bookkeeping, and while the balance sheets furnished by the companies in 1907 were not in all cases complete, they were, as a rule, much more satisfactory than in 1902.

Table 149 is designated a "Net balance sheet" because the surplus shown under liabilities is a net surplus obtained by deducting the sum of the deficits from the sum of the surpluses, the total assets and liabilities reported being reduced, therefore, by an amount equal to the sum of the deficits. This reduction has been made in all balance-sheet tables except in the comparative summary by states (Table 155).

Assets.—The amount reported for cost of construction and equipment should not be taken as representing the actual amount invested in tracks, appliances, and equipment. The consolidations that took place during the five years ending with 1907 made it increasingly difficult to secure a true figure for actual cost of construction and equipment. In 1902 franchise val-

ues were largely carried as sundries, but it is a very common practice to charge these values to cost of construction and equipment. A majority of the street-railway systems in the larger cities are the results of many consolidations, and the turning over of the property in each instance has carried with it a large but unknown value for franchises, good will, etc., so that a considerable proportion of the cost of construction and equipment appearing in the returns for these companies represents capitalized franchise values, etc. Hence, in order to secure uniformity in the returns, in the exceptional cases where franchise values were reported separately they have been added to the cost of construction and equipment; the latter amount then represents the book value of the railway, its equipment and real estate used in conjunction therewith, and its capitalized franchise value, bonus, good will, etc. Of the 1,230 companies that furnished balance sheets in 1907, only 594 stated definitely that franchise values were included under this head, while 404 expressly stated that they were not so included, and 232 neglected or declined to answer the inquiry. The amount reported as cost of construction represents almost exactly the same proportion of the total assets in 1907 as in 1902, the difference in the ratios being only one-fifth of 1 per cent. The increase in the amount reported was 67.8 per cent, as compared with an increase of 68.3 per cent in the total assets. The balance-sheet inquiry in 1902 used only the one head "Other permanent investments" to cover items that in 1907 were reported separately under the headings "Stocks and bonds of other electric-railway companies" and "Other permanent investments." The total amount reported for these two items in 1907 was \$347,110,696 as compared with a total of \$152,513,997 for "Other permanent investments" in 1902, an increase of \$194,596,699, or 127.6 per cent. Such investments constituted 8.1 per cent of the total assets reported in 1907 and 6 per cent of the total for 1902.

When treasury stocks and bonds were reported under that name in 1902 they were excluded in the census of that year from among assets or liabilities. They have been included in the census of 1907, because it was found that it is the bookkeeping practice of the companies so to include them, and it was believed that the difficulties of eliminating them would be greater than any argument for such a policy. Moreover, it is desirable that the statistics should measure the extent and movement of this apparently increasing business practice.¹

The item of bills and accounts receivable shows a very large increase for 1907 over 1902 (419.3 per cent), and constitutes 2.7 per cent of the assets in 1907, as against nine-tenths of 1 per cent in 1902. It is very probable that in some cases advances made by operating companies to lessor companies for improvements

on their lines or for other purposes are included under this head. In 1902 such advances were included under sundries, and the same course was followed in 1907 whenever the reports permitted it. These advances constitute duplications, since the expenditures for which the advances are made are entered on the asset side of the account, under cost of construction and equipment, in the books and reports of the subsidiary companies, while they are also represented among the liabilities of these companies as obligations to the controlling companies. The items cash on hand, bills and accounts receivable, and supplies, representing, collectively, the working assets, amounted in the aggregate to \$173,836,484 in 1907 as compared with \$61,081,481 in 1902 (an increase of \$112,755,003, or 184.6 per cent), and constituted 4 per cent of the total assets in 1907 as compared with 2.4 per cent in 1902.

The amount shown for the assets item "Sundries" in 1907 is practically one-half as great as that shown in 1902. This great decrease is fully explained by the fact that franchise values were generally tabulated under sundries in 1902, while in 1907 they have been included under cost of construction and equipment. Working backward from the total for sundries in 1907, and assuming, for the purpose of calculation, that sundries exclusive of franchise values really increased between 1902 and 1907 at the same rate as the total assets reported, 68.3 per cent, we should reach the deduction that sundries exclusive of franchises were valued in 1902 at \$46,162,925, and hence that franchise values reported under sundries were \$106,454,778. Adding this latter amount to the total reported in 1902 for cost of construction and equipment gives as a corrected total for that year \$2,274,088,855, an amount more properly comparable with the total for 1907, which includes franchise values. The increase for this item, on the corrected basis, would be 60 per cent instead of the 67.8 per cent increase shown by the figures of Table 149.

Investments in securities for the purpose of establishing a sinking fund or a fund for a specified railway use have been largely included under sundries.

Liabilities.—The amount of capital stock, as reported in the balance sheet, is less by the sum of \$65,722,490 than the amount of capital stock outstanding as reported in Table 183, and the funded debt as carried in the balance sheet is \$4,103,310 less than the aggregate amount of funded debt reported in the same table. The difference, in the case of the capital stock, is due chiefly to the fact that in a number of cases the capital stock outstanding is not full paid up, the par value of the stock being reported as called for under Table 183, and the amount paid in being entered among the liabilities in the balance sheet. This condition exists to the largest extent in Pennsylvania, and \$39,190,998 of the difference referred to is due to companies in that state which

¹ For fuller discussion of this point, see p. 103.

had part-paid stock. Differences to the amount of \$6,865,724, due to part-paid stock, also occur in Arizona, Massachusetts, New Jersey, New York, and Ohio. Differences aggregating \$1,865,768 are due to the fact that cash investments for which stock had not yet been issued were reported in Table 183 as if they represented stock actually issued, and in the balance sheet as floating debt. These differences were reported in Missouri, South Dakota, Virginia, and West Virginia. The balance of the difference in stock and the difference in funded debt is occasioned by the fact that for 4 companies in Virginia in the hands of receivers the par value of the outstanding securities is included in Table 183, and the value of the property turned over to the receivers is shown in the balance sheet as funded debt.

In 1902 the differences between the capital stocks and bonds reported in the balance sheets and the stocks and bonds outstanding were \$48,689,671 and \$18,596,717, respectively; of this difference in stock, \$28,299,371 was reported for Pennsylvania.

The ratio of capital stock to total liabilities has decreased slightly, and the corresponding ratio of funded debt has increased. The increase from 1902 to 1907 in the amount of capital stock reported in the balance sheet was 60.4 per cent and in the funded debt, 71.7 per cent. Of the total shown in 1907 for funded debt, \$30,629,091 represents the value of several railway properties in Connecticut which are owned by the New York, New Haven and Hartford Railroad (steam) and for which no capital stock or bonds were reported. In 1907, for the first time, a detailed statement of real-estate mortgages, floating debt, and reserves, apart from bills and accounts payable, was made. In 1902 these items were included either under

bills and accounts payable or under sundries. The apparent decrease, therefore, in bills and accounts payable and in sundries is not an actual decrease. For purposes of comparison it is necessary to combine the bills and accounts payable and the sundries for 1902, and for 1907 to combine the same items, with the addition of the real-estate mortgages, floating debt, and reserves. This calculation gives a total of \$459,244,418 for 1907 as against the comparable total of \$235,103,942 for 1902, an increase of \$224,140,476, or 95.3 per cent. These totals constituted 10.7 per cent of total liabilities in 1907 as compared with 9.3 per cent in 1902.

The large amount shown for floating debt, which in 1907 formed 6.5 per cent of all liabilities, is due to a great extent to the fact that many companies charge to that account part or all of their expenditures for construction and equipment.

The items interest due and accrued, dividends due, and net surplus, represented, respectively, about the same proportion of the total liabilities in 1907 and in 1902. The net surplus represents the balance for all companies; 710 companies in 1907 reported surplus balances aggregating \$106,623,225; 303 companies deficits to the amount of \$36,178,933; and 217 companies balanced their statements with neither profit and loss surplus nor deficit, leaving a net surplus balance of \$70,444,292.

Balance sheet of operating and lessor companies.—While it is necessary to combine the statistics for operating and lessor companies in order to obtain aggregates for the entire industry, the financial transactions of the two classes of companies are so different that it is desirable to present a separate balance sheet for each. The figures are given in Table 150.

TABLE 150.—NET BALANCE SHEET, BY ACCOUNTS, OF OPERATING AND LESSOR COMPANIES, RESPECTIVELY: 1907.

ACCOUNT.	Total, all companies.	Operating companies.	Lessor companies.	PER CENT OF TOTAL.	
				Operating companies.	Lessor companies.
Number of companies.....	1,230	639	291	76.3	23.7
Assets, total.....	\$4,263,861,592	\$3,221,009,127	\$1,042,792,465	73.5	24.5
Cost of construction, equipment, and real estate.....	3,637,668,708	2,719,051,703	918,617,005	74.7	23.3
Stocks and bonds of other electric-railway companies.....	210,342,592	189,941,984	29,400,608	86.0	14.0
Treasury stocks and bonds.....	27,533,501	19,389,042	8,144,459	70.4	29.6
Other permanent investments.....	136,798,104	129,472,561	7,325,543	94.7	5.3
Cash on hand.....	26,436,137	23,946,150	2,490,987	90.1	9.9
Bills and accounts receivable.....	116,548,687	81,114,310	35,434,377	69.6	30.4
Supplies.....	30,811,780	30,565,962	245,818	99.2	0.8
Sundries.....	77,092,203	36,687,415	40,404,788	47.2	52.8
Liabilities, total.....	4,263,861,592	3,221,009,127	1,042,792,465	73.5	24.5
Capital stock.....	2,031,086,306	1,508,759,290	522,327,016	74.3	25.7
Funded debt.....	1,672,059,180	1,264,504,062	408,455,618	75.6	24.4
Real-estate mortgages.....	4,059,805	2,342,341	1,717,464	57.7	42.3
Floating debt.....	278,927,067	222,967,837	56,059,230	79.9	20.1
Reserves.....	27,222,471	27,109,482	112,989	99.8	0.2
Bills and accounts payable.....	91,241,278	83,830,057	7,411,221	91.0	8.1
Interest due and accrued.....	25,317,196	24,316,053	1,001,143	96.0	4.0
Dividends due.....	3,909,280	3,442,502	466,778	88.3	11.7
Sundries.....	57,793,767	41,887,709	15,906,058	72.5	27.5
Net surplus.....	70,444,292	41,549,734	28,894,558	59.0	41.0
Cost of construction and equipment during the year.....	184,918,453	170,446,513	14,471,940	92.2	7.8

¹ Exclusive of 6 companies which failed to furnish this information.

The lessor companies represent approximately one-fourth and the operating companies three-fourths of the combined main balance-sheet totals. This ratio holds substantially for the number of companies, the total assets and liabilities, the cost of construction, equipment, and real estate, and the capitalization.

The holdings of the operating companies in stocks and bonds of other electric-railway companies are proportionately far greater than those of the lessor companies, owing to the fact that many of the operating companies have large and, in some cases, controlling interests in leased properties. The bulk of the investment of the lessor companies in the stocks and bonds of other railway companies is confined to a comparatively few companies; of the 291 lessor companies, only 28 reported such investments, and of the total amount, \$29,400,608, thus reported, \$25,889,788, or nearly 90 per cent, was returned by 4 companies, 2 in New York and 2 in Pennsylvania. Of the operating companies, 108 owned stocks and bonds in other electric-railway companies.

The holdings of the lessor companies in treasury stocks and bonds were proportionately greater than those of the operating companies; but in this case, too, the total holdings were not widely distributed among them. Of the 291 lessor companies, only 9 reported treasury stocks and bonds, and of the total amount, \$8,164,459, shown for this item, more than 90 per cent was reported by 2 companies, 1 of which has part of its road still under construction, while the other has a large floating debt, which offsets its treasury stock and bond assets. The holdings of operating companies in treasury stocks and bonds, on the other hand, were distributed among 76 companies, and were largely offset by floating-debt liabilities incident to railway operations.

As the table shows, the interests of the lessor companies are as a rule confined to the railway properties owned, their investments in nonrailway properties constituting only seven-tenths of 1 per cent of their total assets. Only 15 lessor companies reported permanent investments in nonrailway properties in 1907, and of the total amount, more than three-fourths was reported by 3 companies—1 each in Connecticut, New York, and Washington. There were, on the other hand, 198 operating companies reporting nonrailway investments. Summarizing, it is found that there were 349 companies—304 operating companies and 45 lessor companies—that reported holdings of some one or more of the three investment items.

The items "Cash on hand" and "Supplies" are important chiefly for the operating companies. The cash receipts of the lessor companies are as a rule disbursed as dividends, after the payment of taxes, interest, other charges, and administration expenses, and the cash assets regularly on hand are therefore small. Of the 291 lessor companies, only 112 reported any cash on hand in the balance sheet, and, of the total for these

companies, 70 per cent was reported by a single company. Only 8 of the lessor companies reported any amount for supplies, and of the total amount so reported, over 80 per cent was reported by 2 companies. There were 42 of the lessor companies that reported sundry assets in the balance sheet. Of the total amount reported as sundries by lessor companies, over 90 per cent was reported by 6 companies located, respectively, 1 in New York, 1 in Ohio, and 4 in Pennsylvania; and nearly 85 per cent of the total represents claims for advances made to leased lines by the 4 Pennsylvania companies. This increase of the sundries item by the inclusion of such claims for advances by the lessors fully explains the disproportionately great amount of sundries shown for the lessor companies as compared with the operating companies.

The distribution between the operating and the lessor companies is nearly the same, proportionately, for the items capital stock and funded debt. There were 98 lessor companies and 158 operating companies that reported no funded debt; 18 of these companies reported that funded debt was authorized but that none was outstanding.

Real-estate mortgages were reported by 16 of the lessor companies and the liabilities of this class are relatively heavier for the lessor than for the operating companies. Floating debt was reported by 86 lessor companies; reserves, by 8; bills and accounts payable, by 67; interest due and accrued, by 22; and dividends due, by 4.

Only 42 lessor companies reported sundry liabilities, the bulk of which represented amounts due to lessee companies for advances made for improvements, betterments, and additions to the properties of the lessors. Of the total amount reported as sundries, \$13,279,042, or over 80 per cent, was reported by 5 lessor companies of New York City. The net surplus shown for the lessor companies is the difference between an aggregate surplus of \$32,201,859, reported by 122 companies, and an aggregate deficit of \$3,307,301, reported by 38 companies, the other 131 lessor companies reporting neither surplus nor deficit. Of the lessor companies reporting deficits, 15 were in Pennsylvania; 11 in New York; 6 in Massachusetts; 2 each in New Hampshire and New Jersey; and 1 each in Illinois and Maryland.

One of the most interesting and significant features of this comparative showing of the net balance-sheet statements of lessor and operating companies appears in the net surplus account. The lessor companies, though representing less than one-fourth of the number of all companies, and though reporting only about one-fourth of the capital stock and funded debt of all companies, reported 41 per cent of the total net surplus.

The net surplus shown for all operating companies is the difference between an aggregate surplus of \$74,421,366, reported by 588 companies, and an

aggregate deficit of \$32,871,632, reported by 265 companies—the other 86 operating companies reporting neither surplus nor deficit.

The following statement presents a detailed statement of surpluses and deficits in tabular form:

Analysis of balance-sheet surplus and deficit balances: 1907.

	Total, all companies.	Operating companies.	Lessor companies.	PER CENT OF TOTAL.	
				Operating companies.	Lessor companies.
Number of companies.....	1,230	939	291	76.3	23.7
Net surplus.....	\$70,444,292	\$41,519,734	\$28,924,558	59.0	41.0
Surplus:					
Number of companies.....	710	588	122	82.8	17.2
Per cent of total.....	57.7	62.8	41.9		
Amount.....	\$106,623,226	\$74,421,366	\$32,201,860	69.8	30.2
Deficit:					
Number of companies.....	303	265	38	87.5	12.5
Per cent of total.....	24.6	28.2	13.1		
Amount.....	\$36,178,933	\$32,871,632	\$3,307,301	90.9	9.1
Neither surplus nor deficit:					
Number of companies.....	217	86	131	39.6	60.4
Per cent of total.....	17.6	9.2	45.0		

The per cent distribution of the total assets and the liabilities, respectively, among the several accounts, for operating and lessor companies separately, is given in the following table for 1907:

TABLE 151.—Per cent distribution, by accounts, of the total assets and liabilities, for operating and lessor companies, respectively: 1907.

ACCOUNT.	PER CENT OF TOTAL.		
	Total, all companies.	Operating companies.	Lessor companies.
Assets, total.....	100.0	100.0	100.0
Cost of construction, equipment, and real estate.....	85.3	84.4	88.1
Stocks and bonds of other electric-railway companies.....	4.9	5.6	2.8
Treasury stocks and bonds.....	0.6	0.6	0.8
Other permanent investments.....	3.2	4.0	0.7
Cash on hand.....	0.6	0.7	0.3
Bills and accounts receivable.....	2.7	2.5	3.4
Supplies.....	0.7	0.9	(¹)
Sundries.....	1.8	1.1	EM
Liabilities, total.....	100.0	100.0	100.0
Capital stock.....	47.7	46.8	50.2
Funded debt.....	39.2	39.3	39.2
Real-estate mortgages.....	0.1	0.1	0.2
Floating debt.....	6.5	6.9	5.4
Reserves.....	0.6	0.6	(¹)
Bills and accounts payable.....	2.1	2.6	0.7
Interest due and accrued.....	0.6	0.8	0.1
Dividends due.....	0.1	0.1	(¹)
Sundries.....	1.4	1.3	1.5
Net surplus.....	1.7	1.3	2.8

¹ Less than one-tenth of 1 per cent.

Cost of construction and equipment during the year.—The amount reported for the cost of construction and equipment during the year 1907, shown in Tables 149 and 150, represents actual expenditures reported by going concerns; it does not include the cost of new roads that had not begun operation at the end of the census year.¹ The total expenditure of \$184,918,453 as compared with \$126,682,473 reported for 1902, shows an increase in the cost of new construction of \$58,235,980,

¹ For statistics of railways under construction during the census year, see p. 27.

or 46 per cent. Expenditures for new construction and equipment were reported in 1907 by 816 companies, of which 756 were operating companies and 60 were lessor companies. In other words, 66.3 per cent of all companies reporting financial data reported new construction or equipment. For 1902 the cost of new construction and equipment reported was equal to 5.8 per cent of the total cost of construction and equipment, and for 1907, to 5.1 per cent. The larger part of this expenditure was made by operating companies, their expenditures of this class in 1907 amounting to 6.3 per cent of their total expenditures for construction and equipment, while the corresponding expenditures of the lessor companies for 1907 amounted only to 1.6 per cent. The cost of construction and equipment for the year was included in the total cost of construction and equipment, as presented in the balance-sheet statements; the value of unfinished new work, which is carried temporarily as a separate asset by some companies, was also included in the total cost of construction and equipment.

Balance sheet, by states.—Table 155 is a comparative summary of the balance sheets of all operating and lessor companies, by states and geographic divisions, for 1907 and 1902. It will be noticed that there are slight differences in the United States totals for 1902 for "Net deficit for states showing deficit" and "Net surplus for states showing surplus" given in this table and the corresponding totals published in the 1902 report. These differences result from a difference in the method of combining state totals in 1907 and 1902, respectively.

The gains have been proportionately greatest in the Western, South Central, and North Central divisions, in the order named. Ranked according to the per cent of increase, from 1902 to 1907, in total assets and liabilities, the 10 leading states are the following:

Ten leading states, ranked according to per cent of increase in assets and liabilities from 1902 to 1907.

STATE.	Per cent of increase.	STATE.	Per cent of increase.
Oregon.....	337.8	Washington.....	289.7
Mississippi.....	300.3	California.....	255.4
Kansas.....	372.8	Louisiana.....	231.4
Arkansas.....	330.2	Nebraska.....	191.1
Indiana.....	310.0	Virginia.....	169.0

The 10 leading states, ranked according to the absolute amount of increase in assets and liabilities, are the following:

Ten leading states, ranked according to amount of increase in assets and liabilities from 1902 to 1907.

STATE.	Amount of increase.	STATE.	Amount of increase.
New York.....	\$231,451,906	Illinois.....	\$129,832,400
California.....	210,897,729	Louisiana.....	60,538,902
Ohio.....	169,327,856	Washington.....	58,067,109
Pennsylvania.....	174,361,129	Massachusetts.....	42,710,350
Indiana.....	134,716,055	Wisconsin.....	39,442,718

A condensation of the balance-sheet statistics gives a more comprehensive view than that offered by Table 155. The following table gives a condensed balance-sheet summary, by geographic divisions. On the assets side, the item "Permanent or other investments" includes, for both 1902 and 1907, the holdings of stocks and bonds of other railway companies and other permanent investments in nonrailway property; and for 1907 it also includes treasury stocks and

bonds. The item "Current assets" includes, for both years, cash, bills and accounts receivable, supplies, and sundries. Among the liabilities, the item "Current liabilities" comprehends all liabilities other than surplus, and capital stock and funded debt, the latter two being grouped together under the head "Capitalization." The profit-and-loss surplus is in every case the net surplus.

TABLE 152.—CONDENSED NET BALANCE SHEET OF OPERATING AND LESSOR COMPANIES COMBINED, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	Number of companies.	Total, assets and liabilities.	ASSETS.			LIABILITIES.			Cost of construction and equipment during the year.
				Cost of construction, equipment, and real estate.	Permanent or other investments.	Current assets.	Capitalization. ¹	Current liabilities, including reserves.	Net profit-and-loss surplus.	
United States.....	1907	1,220	\$4,263,801,502	\$3,637,628,708	\$374,064,197	\$251,528,687	\$3,704,946,296	\$488,471,004	\$70,444,292	\$184,918,453
	1902	967	\$2,533,947,258	\$2,167,634,077	\$152,513,907	\$213,809,184	\$2,340,995,711	\$252,145,435	\$40,706,112	\$126,082,473
Per cent of increase.....		27.2	68.3	77.8	145.7	17.7	65.3	93.7	73.1	46.0
North Atlantic.....	1907	505	\$1,822,724,800	\$1,352,230,534	\$118,016,055	\$152,488,217	\$1,535,035,178	\$200,459,042	\$27,210,586	\$67,392,291
	1902	500	\$1,294,863,331	\$1,088,932,237	\$72,094,643	\$133,836,451	\$1,006,406,398	\$173,491,697	\$25,966,236	\$74,118,808
Per cent of increase.....		16.9	40.7	42.5	63.7	13.9	40.1	30.1	4.5	9.1
South Atlantic.....	1907	110	\$288,032,714	\$242,357,960	\$32,955,988	\$12,718,757	\$280,023,079	\$21,000,176	\$6,409,459	\$10,392,234
	1902	77	\$175,131,636	\$162,507,589	\$8,063,544	\$6,560,203	\$167,107,079	\$6,972,848	\$1,051,709	\$5,641,650
Per cent of increase.....		42.9	64.5	49.1	443.5	93.9	55.6	200.8	509.4	82.4
North Central.....	1907	340	\$1,426,022,464	\$1,251,383,729	\$135,078,609	\$38,900,066	\$1,283,038,541	\$121,628,961	\$21,454,962	\$60,013,038
	1902	248	\$824,465,338	\$705,553,933	\$68,569,146	\$50,332,250	\$759,442,745	\$57,348,903	\$7,603,690	\$36,140,029
Per cent of increase.....		37.1	73.0	77.4	97.8	22.6	68.9	111.9	178.9	66.1
South Central.....	1907	91	\$247,911,745	\$203,085,871	\$35,401,790	\$9,304,084	\$219,253,647	\$22,362,100	\$6,295,938	\$10,366,115
	1902	66	\$103,263,411	\$87,294,802	\$11,806,741	\$14,101,808	\$93,609,000	\$7,262,188	\$2,431,323	\$4,346,289
Per cent of increase.....		37.9	140.1	132.6	1,799.7	33.6	134.3	207.9	159.0	138.5
Western.....	1907	94	\$479,169,963	\$388,620,605	\$52,551,695	\$37,997,563	\$407,675,851	\$62,530,065	\$9,073,347	\$36,854,775
	1902	67	\$130,103,542	\$133,345,456	\$3,880,025	\$8,968,463	\$125,469,689	\$7,009,799	\$3,564,154	\$6,435,007
Per cent of increase.....		40.3	262.1	215.1	1,261.1	328.5	224.8	784.3	154.6	472.7

¹ Includes capital stock and funded debt.

² Exclusive of 6 companies which failed to furnish this information.

³ Exclusive of 20 companies which failed to furnish this information.

⁴ Decrease.

There is a regular progression in the rates of increase in total assets and liabilities of the several geographic divisions in the order in which they occur in the table, starting with an increase of 40.7 per cent for the North Atlantic division, and reaching 252.1 per cent for the Western division; the same progression appears also for cost of construction, equipment, and real estate, and for capitalization; which, respectively, constitute the major part of the assets and the liabilities.

In the matter of number of companies the rates of increase are nearly the same for the South Atlantic, North Central, South Central, and Western divisions, and in each of these divisions the rate is more than double that for the North Atlantic division. "Permanent or other investments" show gains in all divisions largely in excess, proportionately, of the gains in cost of construction, equipment, and real estate, and, although the largest absolute increase in "Permanent or other investments" was in the North Central division, the large rates of increase in this item were reported for the South Central and Western divisions. The increase in current assets in the states of the Western division exceeds that of any other division in both rate and amount.

On the liability side of the statement it will be seen that the current liabilities have increased in all divi-

sions at a faster rate than the capitalization, with the highest rate of increase in the Western division.

The rate of increase in the profit-and-loss surplus is high for each of the divisions, with the exception of the North Atlantic. For the United States, this rate is slightly higher than the rate of increase in the total assets and liabilities, while for the South Atlantic division it largely exceeds the rates of increase for the other divisions.

The high rates of increase shown for the Western division in the several items included in the balance sheet appear also for the cost of new construction and equipment during the year, which showed a greater amount and rate of increase for 1907 as compared with 1902 in this division than in any other. In the North Atlantic division the cost of new construction was less in 1907 than in 1902.

The following percentage tables are presented to supplement the foregoing condensed balance-sheet summary. Table 153 gives the per cent distribution of the number of companies, the assets and liabilities, and the cost of new construction and equipment during the year, by geographic divisions, for 1907 and 1902; Table 154 gives the per cent distribution of the assets and liabilities of each geographic division, by condensed accounts for the same years.

STREET AND ELECTRIC RAILWAYS.

TABLE 153.—PER CENT DISTRIBUTION OF CONDENSED ASSETS AND LIABILITIES, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	Number of companies.	PER CENT OF TOTAL FOR UNITED STATES.							Cost of construction and equipment during the year.
			Total assets and liabilities.	Assets.			Liabilities.			
				Cost of construction, equipment, and real estate.	Permanent or other investments.	Current assets.	Capitalization. ¹	Current liabilities, including reserves.	Net profit-and-loss surplus.	
United States.....	1907	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	1902	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
North Atlantic.....	1907	48.4	42.7	42.7	31.5	60.6	41.4	53.3	28.6	36.4
	1902	52.6	51.1	50.2	47.3	62.6	48.9	68.8	63.8	58.5
South Atlantic.....	1907	8.9	6.8	6.7	8.8	5.1	7.0	4.4	9.1	5.6
	1902	8.0	6.9	7.5	4.0	3.1	7.5	2.8	2.6	4.5
North Central.....	1907	27.6	23.4	24.4	26.2	13.5	24.0	24.9	30.5	32.5
	1902	25.6	22.5	22.5	45.0	23.6	33.9	22.7	18.9	28.5
South Central.....	1907	7.4	5.8	5.6	9.5	2.7	5.9	4.6	8.9	5.6
	1902	6.8	4.1	4.0	1.2	6.6	4.2	2.9	6.0	3.4
Western.....	1907	7.6	11.2	10.7	14.0	15.1	11.0	12.8	12.9	19.9
	1902	6.9	5.4	5.7	2.6	4.1	5.6	2.9	8.6	5.1

¹ Capital stock and funded debt.

TABLE 154.—PER CENT DISTRIBUTION, BY ACCOUNTS, OF CONDENSED ASSETS AND LIABILITIES, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Census.	PER CENT OF TOTAL ASSETS AND LIABILITIES.							Cost of construction and equipment during the year; per cent of total cost of construction and equipment.
		Total assets and liabilities.	Assets.			Liabilities.			
			Cost of construction, equipment, and real estate.	Permanent or other investments.	Current assets.	Capitalization. ¹	Current liabilities, including reserves.	Net profit-and-loss surplus.	
United States.....	1907	100.0	85.3	8.8	5.9	86.9	11.5	1.7	5.1
	1902	100.0	85.5	6.0	8.4	88.4	10.0	1.6	5.8
North Atlantic.....	1907	100.0	85.2	6.5	8.4	84.2	14.3	1.5	4.2
	1902	100.0	84.1	5.6	10.3	84.6	13.4	2.0	6.8
South Atlantic.....	1907	100.0	84.1	11.4	4.4	90.3	7.5	2.2	4.2
	1902	100.0	92.8	3.5	3.7	95.4	4.0	0.6	3.5
North Central.....	1907	100.0	87.8	9.5	2.7	90.0	8.5	1.5	4.8
	1902	100.0	85.6	8.3	6.1	92.1	7.0	0.9	5.1
South Central.....	1907	100.0	81.9	14.3	2.8	88.4	9.0	2.5	5.1
	1902	100.0	84.5	1.8	13.7	90.6	7.0	2.4	5.0
Western.....	1907	100.0	81.1	11.0	7.9	88.1	13.0	1.9	9.6
	1902	100.0	90.6	2.9	6.5	92.2	5.2	2.6	5.2

¹ Capital stock and funded debt.

It appears from Table 153 that the North Atlantic division had a smaller proportion of the total number of companies in 1907 than in 1902, while all the other divisions had larger proportions; and the same is true of current liabilities, profit-and-loss surplus, and cost of new construction during the year. The North Central, South Central, and Western divisions show larger proportions of the total cost of construction, equipment, and real estate, and of capitalization reported, as well as of the total assets and liabilities, in 1907 than in 1902, while the percentages for the North Atlantic

and South Atlantic divisions are smaller. The gains in relative importance for the Western division are noticeably large. Referring to Table 154, it will be seen that "Permanent or other investments" constituted a considerably increased proportion of the assets of electric-railway companies in all districts in 1907, and especially in the South Central, Western, and South Atlantic divisions. In this connection it must be recalled that treasury stock was included in this item in 1907, and excluded in 1902.

STREET AND ELECTRIC RAILWAYS.

TABLE 155.—BALANCE SHEET, BY ACCOUNTS, OF OPERATING AND LESSOR COMPANIES

			ASSETS.												
STATE OR TERRITORY.	Census.	Number of companies.	Total.	Cost of construction, equipment, and real estate.	Stocks and bonds of other electric-railway companies. ¹	Treasury stocks and bonds. ²	Other permanent investments.	Cash on hand.	Bills and accounts receivable.	Supplies.	Sundries.	Profit and loss—deficit for companies reporting deficit.	Net deficit for states showing deficit.		
1 2 United States.	1907 1902	1,230 919	\$4,300,040,525 2,545,132,005	\$3,637,068,708 2,167,634,077	\$210,342,592	\$27,553,501	\$136,768,104 152,514,997	\$25,456,137 29,021,853	\$116,568,957 22,448,700	\$30,811,390 10,610,028	\$77,692,203 152,617,703	\$36,178,933 11,280,047	\$105,356 1,067,290		
3 4 North Atlantic division.	1907 1902	595 509	1,844,919,859 1,391,179,219	1,552,230,534 1,088,932,237	79,636,934	8,481,359	29,897,792 72,084,643	13,101,337 17,533,342	75,540,528 14,344,880	12,951,881 5,388,377	50,804,471 96,509,852	22,185,053 6,315,888	103,341 134,148		
5 6 Me.....	1907 1902	17 20	23,185,409 12,476,227	21,413,212 11,176,656	3,139		997,523 559,950	91,422 86,503	399,281 69,716	129,227 55,567	81,974 209,555	69,631 318,370			
7 8 N. H.....	1907 1902	19 13	8,045,201 4,435,194	7,948,616 4,118,457				31,556 177,579	69,383 108,629	6,555 6,636	30,725 20,163	58,164 3,730			
9 10 Vt.....	1907 1902	10 9	6,561,606 3,503,339	5,382,047 2,850,460			700,000	38,846 20,477	27,390 10,506	16,615 6,041	445 292,989	390,520 22,806	103,341		
11 12 Mass.....	1907 1902	81 92	164,338,000 121,027,660	149,681,514 109,782,044	168,500	2,000	926,329 212,011	2,584,026 1,387,588	5,652,233 1,451,077	3,124,730 5,065,058	942,883 5,065,058	955,785 406,371			
13 14 R. I.....	1907 1902	8 7	25,843,245 24,489,995	23,983,340 23,871,751	100,000	32,500	103,142	133,228 38,443	380,409 147,373	558,384 160,607	664,503 1,599	78,729 268,632			
15 16 Conn.....	1907 1902	11 25	73,518,317 45,645,833	67,714,955 42,482,731	331,040	219,500	1,373,046 2,121,530	558,056 300,733	2,542,484 72,907	739,503 191,509	27,985 371,430	11,838 104,990			
17 18 N. Y.....	1907 1902	147 110	874,406,750 643,014,844	709,343,843 521,942,957	48,100,646	7,065,739	14,846,302 39,751,267	7,063,216 11,859,612	56,612,792 8,615,728	5,159,040 2,116,054	10,250,913 68,140,377	15,403,659 3,389,249			
19 20 N. J.....	1907 1902	41 29	170,111,480 132,029,283	161,901,839 126,589,270	2,832,180		1,504,685 880,908	204,798 639,114	653,692 278,001	756,545 339,461	829,096 2,549,375	1,518,654 954,154	134,148		
21 22 Pa.....	1907 1902	262 195	488,849,582 314,258,454	394,960,968 246,118,011	28,072,429	1,141,620	9,446,735 31,509,907	1,816,187 1,307,980	8,692,864 3,454,432	2,400,682 1,061,225	38,566,034 29,899,316	3,702,063 848,523			
23 24 South Atlantic division.	1907 1902	110 77	289,306,646 175,839,583	242,357,969 162,507,389	12,838,587	825,331	19,291,850 6,063,844	2,297,616 1,124,091	5,128,346 1,538,300	1,750,004 502,244	3,542,791 3,395,568	1,273,932 706,947	92,015 120,457		
25 26 Del.....	1907 1902	7 3	6,956,858 5,289,910	6,622,029 5,104,476				24,030 71,380	80,534 40,980	21,967 47,301	5,239 7,977	201,070 17,850	92,015		
27 28 Md. and D. C.	1907 1902	21 20	134,872,527 98,769,988	115,631,297 96,148,894	5,612,897	505,350	8,562,724 30,000	989,587 432,639	1,073,553 499,894	406,764 171,497	1,265,069 898,371	824,395 588,703	103,643		
29 30 Va.....	1907 1902	23 16	53,195,734 19,773,297	40,306,693 15,414,124	4,100,600		5,056,010 2,284,535	931,089 230,357	1,278,357 598,200	287,773 30,732	990,872 151,552	84,281 57,597			
31 32 W. Va.....	1907 1902	18 8	25,587,022 10,005,352	22,087,542 9,039,281	2,255,650	84,000	147,073 244,819	51,268 100,805	187,194 5,970	32,008 4,529	655,835 601,492	85,843 2,430			
33 34 N. C.....	1907 1902	12 7	10,500,915 4,430,976	7,698,294 2,408,661	578,650	54,501	954,108 639,690	34,977 24,076	974,278 89,318	139,083 36,408	43,898 1,196,720	25,114 34,103	16,814		
35 36 S. C.....	1907 1902	7 7	10,794,293 6,080,525	9,154,985 4,523,752	22,000		1,274,500 1,730,000	49,191 8,344	188,514 58,631	72,344 45,052	30,545 316,901	1,961 6,244			
37 38 Ga.....	1907 1902	12 10	38,301,634 27,036,898	32,381,602 25,157,673	210,721	69,700	3,297,435 124,800	118,719 196,523	1,234,280 212,437	521,058 142,571	452,387 212,894	15,642			
39 40 Fla.....	1907 1902	10 6	9,097,693 3,822,637	8,475,437 3,710,728		112,000		98,765 47,951	111,636 32,994	166,195 23,453	98,044 7,601	35,615			
41 42 North Central division.	1907 1902	340 248	1,435,261,945 828,514,522	1,251,383,729 705,553,933	78,336,288	14,091,517	43,250,584 68,569,146	8,945,632 6,343,396	17,450,850 4,958,422	7,380,303 2,009,081	7,174,281 36,120,760	9,229,381 4,079,184	832,685		
43 44 Ohio.....	1907 1902	90 66	380,741,944 181,414,088	321,678,074 169,058,687	25,003,725	3,130,577	18,536,712 1,147,336	1,729,931 1,705,698	4,534,582 2,320,577	2,006,771 664,396	2,162,284 6,291,680	1,896,288 225,898			
45 46 Ind.....	1907 1902	43 26	178,170,550 43,454,695	166,367,274 20,420,184	740,675	1,607,740	5,297,968 10,435	607,436 371,275	1,572,190 107,448	563,980 170,916	650,802 3,241,044	742,430 133,194			
47 48 Ill.....	1907 1902	86 86	414,785,525 294,953,125	346,693,323 225,507,387	32,180,017	5,340,700	11,562,719 40,237,103	1,906,872 1,819,913	6,401,234 1,123,128	2,043,729 809,638	2,652,985 12,482,930	5,893,939 2,933,026	826,080		
49 50 Mich.....	1907 1902	24 24	97,789,735 66,227,896	84,391,281 55,982,232	3,351,144	1,575,000	1,613,510 2,068,542	229,058 330,675	961,114 531,320	906,052 174,632	481,092 7,416,092	261,475 124,493			
51 52 Wis.....	1907 1902	20 17	70,777,446 31,834,728	47,775,012 29,369,238	16,237,000	560,000	3,147,040 708,756	142,963 225,314	1,924,256 333,118	221,327 339,740	588,364 867,214	181,450 2,348			
53 54 Minn.....	1907 1902	5 5	50,234,168 40,016,285	47,567,947 39,273,860	102,044	971,800	46,280	800,804 477,935	178,021 4,862	551,856 101,286	14,786 147,242	11,100			
55 56 Iowa.....	1907 1902	26 22	38,312,747 19,977,650	35,319,366 18,035,123	720,147	6,000	734,410 47,704	142,108 243,518	497,280 229,522	261,058 80,496	490,145 1,214,397	142,223 129,998			
57 58 Mo.....	1907 1902	14 17	162,772,426 149,080,320	156,852,689 117,628,650		900,000	1,611,824 24,379,270	1,000,783 2,099,330	1,170,549 455,988	610,180 4,743,535	70,039 4,743,535	49,764 510,243			

¹ Not reported separately in 1902. Included in "Other permanent investments" at that census.² Not reported in 1902.³ Not reported separately in 1902. Probably included in "Bills and accounts payable" and "Sundries" at that census.

FINANCIAL OPERATIONS.

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COMBINED, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

LIABILITIES.												Cost of construction and equipment during the year.
Total.	Capital stock.	Funded debt.	Real-estate mortgages. ¹	Floating debt. ²	Reserves. ³	Bills and accounts payable.	Interest due and accrued.	Dividends due.	Sundries.	Profit and loss—surplus for companies reporting surplus.	Net surplus for states showing surplus.	
\$4,300,040.525	\$2,031,986,366	\$1,672,959,930	\$4,059,905	\$278,927,097	\$27,222,471	\$91,241,278	\$23,317,196	\$3,909,390	\$57,793,767	\$106,623,225	\$70,639,648	\$164,918,453
2,545,132,305	1,346,883,289	974,112,422				101,704,634	14,497,670	2,543,823	133,399,808	51,991,159	41,793,402	126,682,473
1,844,919,859	867,038,114	688,017,064	2,045,810	144,590,176	7,157,725	51,080,883	8,176,817	2,070,647	44,786,974	49,405,639	27,313,927	67,392,291
1,301,179,219	639,158,333	456,248,065				59,875,280	6,756,430	847,450	107,012,537	32,281,124	20,099,384	74,118,896
23,185,409	10,944,713	11,030,000	37,732	226,441	54,114	474,536	99,542	16,797	14,865	305,909	236,035	725,914
12,476,227	5,053,055	6,155,000				746,799	90,967		80,409	379,907	61,437	1,181,015
8,045,201	4,518,700	2,390,000		418,622	54,430	35,001	78,879		80,961	263,608	205,444	797,794
4,435,194	2,833,200	1,556,000				275,582	4,000		174,207	92,100	88,379	230,423
6,561,866	3,370,000	2,548,667		114,840	618	141,483	92,724		353	109,179		908,332
3,203,339	1,835,100	931,600				66,201	23,312	1,660	310,621	34,854	11,988	72,392
104,338,000	74,397,675	60,279,000	229,800	12,225,600	227,850	5,075,670	958,168	867,904	5,190,439	3,875,724	2,919,939	8,662,402
121,667,650	59,378,602	37,966,942				16,241,821	251,987	337,736	5,006,353	2,394,207	1,977,836	12,821,531
35,843,245	24,555,405	7,070,200		873,702	1,216,534	281,840	41,667		111	1,558,791	1,790,052	1,100,611
24,488,395	16,375,000	6,221,200				1,255,385	90,837		6,492	539,491	290,529	1,675,228
73,518,317	20,371,900	47,081,091	1,500	495,423	110,301	2,638,416	30,321		136,303	2,482,082	2,470,224	3,653,219
45,645,933	25,211,640	17,433,500				1,984,704	128,330		296,491	589,198	484,174	1,353,993
674,666,750	377,937,540	336,447,128	1,711,313	76,254,781	2,200,944	28,131,967	5,165,390	1,005,630	20,921,020	24,611,102	9,207,443	27,688,063
643,014,844	276,209,172	252,929,373				23,423,932	3,708,284	318,131	69,290,706	17,039,206	13,650,957	30,278,382
170,111,489	71,811,380	86,260,500	252,453	2,029,979	2,005,006	2,041,063	688,429	4,000	2,236,932	2,001,967	573,013	4,537,796
132,029,293	69,339,440	57,490,750				2,994,778	900,014	4,927	970,466	920,000		9,437,053
688,849,382	239,110,797	134,702,468	413,012	50,979,698	527,938	12,065,947	1,031,701	174,196	16,199,966	13,023,837	9,921,774	19,321,140
314,258,454	183,620,124	75,563,700				11,876,068	2,019,562	185,086	30,802,698	10,382,306	9,533,083	11,083,181
289,306,646	106,341,030	151,682,049	70,900	13,753,682	1,332,554	3,773,822	1,663,320	78,827	900,571	7,663,391	6,501,474	10,292,234
175,838,583	60,887,171	100,219,806				4,431,232	1,163,985	126,092	1,240,539	1,758,656	1,172,106	5,641,650
6,936,856	2,901,995	3,070,000	15,000	731,063		12,070	28,759	62,000	26,005	109,055		80,163
5,289,910	2,294,990	2,424,000				523,953	10,920		30,406	35,636	17,799	1,045,456
134,672,527	46,490,050	79,319,709	12,900	3,153,742	792,688	798,949	993,746	2,000	263,997	1,042,140	217,700	1,716,407
98,799,988	33,579,556	61,039,194				1,669,493	760,999	107,423	622,363	446,000		1,924,761
53,195,734	14,926,680	30,667,480	25,000	2,994,184	209,744	1,613,427	372,069	15,000	209,907	2,162,363	2,078,092	3,778,725
19,773,297	7,277,000	11,019,314				899,006	118,043	18,089	242,225	209,641	132,044	605,059
25,557,022	10,704,075	10,406,500		2,923,064	12,795	255,681	77,904		19,263	1,187,600	1,101,757	821,756
10,005,352	4,773,000	5,308,400				202,527	12,301		12,752	133,772	133,322	734,039
10,500,915	4,409,800	3,887,750		1,115,631	67,671	170,929	37,440		181,904	624,000	569,976	961,691
4,430,976	1,995,025	1,680,500				392,030	60,730		84,202	17,289		253,246
10,794,263	3,984,200	4,766,000		1,330,420	114,482	157,575	49,465		26,839	365,282	363,301	291,162
6,680,525	2,589,400	3,336,000				445,384	29,737		213,538	75,466	69,222	308,214
38,301,634	18,110,400	16,789,600	24,000	896,638	133,630	623,727	66,626	9,927	39,396	1,007,800	1,562,156	1,273,929
27,056,898	12,957,600	13,081,500				103,951	54,943		127,358	671,566	673,406	773,406
9,007,693	4,834,800	2,775,000		608,000	1,544	135,764	55,520		106,390	565,055	549,440	1,339,401
3,822,637	1,919,400	1,531,000				84,309	112,412	600	16,946	128,223	128,223	97,467
1,435,261,845	716,888,841	567,149,700	1,109,636	65,086,960	14,283,831	22,130,960	9,182,058	941,523	8,733,403	30,694,343	21,454,962	60,013,038
829,594,522	438,128,419	321,014,128				29,626,883	4,634,617	1,253,384	21,834,019	11,772,874	8,520,375	26,140,029
390,741,944	229,845,875	116,290,000	753,200	16,405,303	3,074,621	5,843,372	1,836,963	342,285	2,245,502	7,312,923	5,416,635	10,440,831
18,414,088	108,638,650	60,942,000				6,441,750	450,290	175,353	2,349,156	2,416,889	2,101,021	11,962,321
178,170,550	94,223,970	72,093,350	20,598	3,998,891	461,818	2,175,159	763,799	82,037	1,102,548	3,278,360	2,535,944	9,726,552
42,434,496	16,635,028	21,550,760				3,091,924	102,640	8,015	1,064,308	401,820	298,820	1,891,946
414,785,525	200,154,400	167,379,400	262,938	19,384,681	4,425,919	6,500,012	3,728,971	19,024	4,088,753	8,751,427	2,887,488	21,440,877
284,953,125	156,713,616	97,885,267				8,706,905	2,084,063	300,673	15,094,975	2,106,996		13,670,000
97,789,735	38,007,400	48,025,900	1,800	3,928,216	716,650	2,380,867	417,373	175	113,999	2,995,333	2,713,858	2,300,815
66,227,886	29,033,100	32,596,800				2,838,408	539,992	132,234	113,384	973,968	849,485	1,730,684
70,777,446	29,864,400	32,308,250		969,827	2,325,293	2,703,105	459,622	45,583	192,619	1,948,747	1,767,591	6,554,700
31,334,728	15,178,000	13,058,350				1,100,953	204,298	69,067	589,920	1,132,934	1,130,586	1,826,050
50,234,108	23,905,000	20,912,500	28,800	1,525,500	1,431,891	518,687	315,193	251,250	421,062	924,283	924,283	1,900,672
40,016,255	23,290,000	13,256,000				122,908	229,928	300,200	67,639	2,789,610	2,778,510	1,044,800
38,312,747	20,663,046	12,804,500		1,787,921	121,459	594,177	120,430		173,607	2,617,547	1,875,314	2,636,907
19,977,060	10,541,200	6,770,333				1,338,918	73,101	1,616	62,956	1,189,536	1,069,638	1,678,741
162,372,428	66,819,400	80,836,000	16,791,747	913,861	1,124,798	1,124,798	1,318,954	173,671	151,849	2,232,160	2,182,396	2,965,019
149,000,520	68,234,100	71,474,816				8,700,149	948,259	206,621	1,868,298	568,277	58,034	2,167,873

¹ Exclusive of 6 companies which failed to furnish this information.² Exclusive of 20 companies which failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 155.—BALANCE SHEET, BY ACCOUNTS, OF OPERATING AND LESSOR COMPANIES

No.	STATE OR TERRITORY.	Cen- sus.	Num- ber of com- pan- ies.	ASSETS.										Profit and loss—def- icit for companies reporting deficit.	Net def- icit for states showing deficit.
				Total.	Cost of con- struction, equipment, and real estate.	Stocks and bonds of other elec- tric-rail- way com- panies. ¹	Treasury stocks and bonds. ²	Other permanent invest- ments.	Cash on hand.	Bills and accounts receivable.	Supplies.	Sundries.			
59	North Central division—Con. N. and S. Dak. ³	1907	5	\$644,716	\$631,358				\$9,507	\$3,068	\$1,008	\$95			
60	Nebr.....	1907	10	25,641,686	25,050,412	\$1,516		\$150,563	205,231	111,936	105,491	4,537			
61		1902	4	8,807,066	8,599,242				100,951	9,175	19,299	76,654	\$1,845		
62	Kans.....	1907	17	15,690,900	14,836,953			551,123	75,990	44,688	30,165	58,262	\$1,790		
63		1902	11	3,318,649	3,069,321				14,622	2,942	14,379	190,286	7,179		\$6,655
64	South Central division.	1907	91	245,432,559	203,085,871	16,071,758	\$986,737	18,403,275	1,512,788	4,517,381	1,538,319	1,795,596	540,814		
65		1902	66	103,329,836	87,294,862			1,896,741	990,545	770,481	423,137	11,917,045	65,225		
66	Ky.....	1907	13	36,044,673	34,693,140		1,000	893,262	169,000	394,049	304,285	68,620	44,227		
67		1902	12	25,239,795	22,880,276			40,928	233,415	42,307	139,696	1,810,241	21,921		
68	Tenn.....	1907	9	40,163,487	38,731,679	100,000		170,000	391,632	119,447	255,912	394,156	641		
69		1902	5	18,142,307	16,631,576			582,015	64,557	491,804	62,046	9,167	1,122		
70	Ala.....	1907	10	31,014,117	27,189,353	22,055	210,000	2,455,800	122,348	448,160	251,700	116,467	167,604		
71		1902	9	15,451,927	13,999,633			949,116	78,370	94,804	28,101	278,765	13,638		
72	Miss.....	1907	8	8,609,208	6,777,857			1,270,907	34,979	104,611	31,413	431,123	18,118		
73		1902	5	1,444,119	1,268,064			114,196	11,196	5,928	2,390	40,540	1,785		
74	La.....	1907	12	84,629,019	52,216,789	15,939,103		12,028,121	347,198	2,654,647	177,943	392,818	36,520		
75		1902	9	24,084,087	14,282,507				243,853	97,891	100,909	9,329,908	23,959		
76	Ark.....	1907	8	10,761,028	9,042,616		139,000	1,213,790	29,905	149,066	68,872	72,789	24,400		
77		1902	7	2,501,330	2,207,346			40,486	27,266	6,106	11,149	208,975	800		
78	Okla. ⁴	1907	8	6,715,740	6,034,662		8,357	214,561	13,573	223,475	101,879	76,304	42,738		
79	Tex.....	1907	23	30,461,266	28,399,575		628,400	26,834	407,063	233,126	226,415	253,289	185,546		
80		1902	17	16,465,080	15,755,440			140,000	231,866	31,141	65,784	240,029	800		
81	Western division	1907	94	482,099,616	398,620,005	23,459,045	3,168,317	25,924,333	2,598,764	13,922,852	7,190,883	14,285,064	2,929,753		
82		1902	67	136,221,345	123,845,456			3,899,623	2,090,479	836,617	1,387,489	4,613,878	117,863		
83	Mont.....	1907	5	4,949,708	3,191,227		24,920	1,567,177	19,334	71,373	74,923	9,115	1,699		
84		1902	5	3,748,096	3,229,532				46,521	37,782	22,589	347,107	65,565		
85	Colo.....	1907	11	41,299,507	28,039,230	11,303,700	399,000	138,572	307,301	588,036	400,540	83,223	38,996		
86		1902	7	16,829,646	16,174,735			210,002	149,637	39,298	115,097	121,850	9,967		
87	Wash.....	1907	15	78,110,935	64,863,788	2,518,863	1,080,860	2,845,957	877,317	3,234,468	1,234,094	822,404	514,106		
88		1902	8	20,043,826	19,574,439			191,793	406,694	234,994	274,026	361,980			
89	Oreg.....	1907	8	41,866,855	21,485,428	9,012,500		8,931,170	225,020	1,667,091	461,568	83,478			
90		1902	6	6,563,793	6,233,570				89,001	8,080	89,341	118,864	21,737		
91	Cal.....	1907	42	293,000,279	251,002,790	623,982	1,063,000	11,950,957	1,060,472	8,165,649	4,180,313	12,607,587	2,165,529		
92		1902	35	82,002,550	74,024,108			1,805,108	1,186,782	515,963	832,041	3,632,077	6,751		
93	All other West- ern states and territories. ⁴	1907	13	22,272,332	19,348,142		600,528	500,500	100,320	175,755	739,436	580,257	200,394		
94		1902	6	6,442,434	4,508,012			1,082,600	151,244		53,795	32,000	14,793		
95	Hawaii and Porto Rico. ⁵	1907	4	4,231,234	3,945,002	56,300			27,021	87,249	67,159	48,443			
96		1902	5	3,502,475	2,181,593			332,314	102,950	64,898	31,950	778,161	11,039		

¹ Not reported separately in 1902. Included in "Other permanent investments" at that census.² Not reported in 1902.³ Not reported separately in 1902. Probably included in "Bills and accounts payable" and "Sundries" at that census.⁴ No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.

FINANCIAL OPERATIONS.

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COMBINED, BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

LIABILITIES.												Cost of construction and equipment during the year.
Total.	Capital stock.	Funded debt.	Real-estate mortgages. ¹	Floating debt. ²	Reserves. ³	Bills and accounts payable.	Interest due and accrued.	Dividends due.	Sundries.	Profit and loss—surplus for companies reporting surplus.	Net surplus for states showing surplus.	
\$844,716	\$384,980	\$300,000		\$86,100		\$26,816				\$36,830	\$36,830	\$6,293 59
25,641,086	13,864,583	9,540,000	\$300	133,203	\$791,080	274,783	\$192,509	\$17,698	\$211,817	614,911	614,911	924,736 60
8,807,086	6,012,123	2,393,000				127,436		50,306	21,000	192,320	190,475	211,686 61
18,090,900	8,325,788	6,190,800		176,371	21,239	130,166	27,940	9,000	29,567	579,812	408,022	1,024,476 62
3,318,049	2,162,000	1,115,000				37,332	1,410		2,377	324		35,693 63
248,452,539	119,667,530	99,586,117	74,357	13,448,532	672,320	4,158,927	2,035,429	813,048	1,158,947	6,536,752	6,296,938	10,346,115 64
103,328,636	50,335,800	43,234,100				5,357,032	880,042	199,744	825,350	2,436,549	2,431,223	4,346,289 65
36,044,073	16,047,400	13,726,000	16,000	1,906,019	137,514	742,073	348,630	31,250	32,071	1,637,716	983,489	1,223,994 66
25,239,786	11,320,900	12,204,300				284,044	294,275	77,280	166,027	880,990	859,069	371,036 67
40,163,467	17,490,100	19,348,000		1,359,193	198,391	364,037	455,240		321,105	618,401	617,700	2,118,219 68
18,142,307	8,160,400	8,686,400				908,620	31,620		86,901	266,276	265,154	1,173,083 69
31,014,117	12,980,900	15,181,687	1,000	1,076,822	93,983	490,080	228,784	107,126	372,821	490,922	293,216	901,621 70
15,431,927	7,696,900	6,678,500				599,132	133,272	2,000	48,343	263,700	280,122	1,329,516 71
8,680,208	3,937,890	3,502,500		704,826	54,584	120,457	80,745		121,051	147,165	129,047	522,292 72
1,444,119	626,000	644,000				134,628	8,212		8,070	22,700	20,924	311,417 73
84,623,049	46,839,700	29,145,000		3,152,754	73,406	1,716,710	679,567	588,671	155,975	2,269,268	2,232,746	1,260,258 74
24,064,087	12,494,900	10,010,000				291,257	289,200	114,203	259,547	634,980	609,021	490,546 75
10,761,028	4,841,600	4,453,000		687,617	9,908	153,820	53,601		39,541	517,941	514,341	439,672 76
2,501,330	855,300	1,058,000				180,425	32,590		242,026	102,960	102,990	82,272 77
6,715,749	4,145,800	2,029,000		46,000	72,385	266,858	7,846		21,602	124,278	81,540	1,858,163 78
30,461,268	13,371,150	10,200,950	57,357	4,516,301	10,167	301,892	181,016	86,591	94,781	1,641,063	1,454,497	1,953,066 79
16,465,080	9,150,900	3,952,900				2,958,926	90,873	6,291	10,347	294,843	294,043	588,397 80
482,099,616	241,050,831	166,325,000	93,102	42,047,747	2,776,031	10,146,696	4,238,772	4,745	2,213,572	12,008,100	9,073,847	36,834,775 81
136,221,345	72,073,566	53,306,023				3,414,397	1,000,596	116,953	2,477,963	2,681,957	3,564,154	6,435,607 82
4,949,708	2,781,375	1,550,000		81,418	14,715	22,916	18,842		1,097	479,445	477,806	163,733 83
2,748,098	2,045,613	1,275,000				984	134,750		124,556	167,193	101,828	65,320 84
41,299,507	17,908,500	19,450,000		931,932	250,316	503,638	267,840	1,610	170,097	1,725,575	1,686,579	874,712 85
16,820,646	7,362,804	8,296,560				418,881	239,493		138,848	365,090	355,093	402,023 86
78,110,935	40,454,900	23,414,000		8,918,612	3,460	1,262,193	385,996		339,457	3,332,338	2,818,143	11,497,626 87
20,043,826	10,636,400	7,747,813				845,156	121,355		137,717	555,365	555,365	3,290,615 88
41,896,855	22,428,900	10,599,000	40,000	1,231,764		606,626	271,482		31,775	637,108	657,108	1,506,142 89
6,563,793	2,788,550	2,737,000				214,452	26,890		142,536	654,365	632,628	330,939 90
293,000,279	147,734,600	96,912,400	53,102	28,602,668	3,507,532	7,341,483	3,108,283	3,135	1,571,146	4,966,930	2,800,421	21,296,334 91
82,002,550	46,022,099	30,329,500				1,650,635	538,106	116,653	1,934,206	1,811,049	1,805,398	2,164,806 92
22,272,332	9,652,676	8,699,600		2,381,323		409,670	186,379		100,000	842,684	633,290	1,547,028 93
8,442,434	3,218,100	2,811,150				284,279				128,905	114,122	172,903 94
4,231,234	1,846,400	1,604,786		265,723	81,384	17,326	45,427	4,592	11,992	253,732	253,732	149,818 95
3,502,875	2,021,340	1,163,800				55,276	20,146	2,890	109,083	139,331	119,292	310 96

¹ No company reported in 1902.² Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 4. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.³ Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

CHAPTER VIII.

EMPLOYEES, SALARIES, AND WAGES.

The statistics relate to salaried employees and to all wage-earners engaged in the maintenance or operation of power plants and rolling stock, in the maintenance of track and roadway and overhead lines, and in the operation of the commercial light and power plants of the railways. They do not include persons employed exclusively on new extension work.

The wage-earners have been separated by occupation into seventeen classes, but the separation can not be accepted as exact, because often among the small and medium-sized companies an employee acts in two or more capacities, and in the returns the assignment to an occupation was made according to the opinion of the person who furnished the information for the census report. The classification "Other mechanics" includes, in some instances, employees working some part of the year in one or more of the specified occupations. A few companies included their commercial electric light and power-plant workers among "Other employees" instead of distributing them by occupations. The total of the numbers reported for each occupation represents the total number employed, and the number is very nearly correct in the case of well-defined occupations, such as those of conductors and motormen.

In a few instances, where electric railways were operated by steam-railroad companies or by corporations engaged in other lines of business, it was impossible to ascertain the exact number of employees engaged in the electric branch of their work or to apportion accurately the salaries and wages paid to such employees. Such cases, however, are not sufficient in number or importance to affect the totals seriously.

In 1907 the class specified "Car and motor repairers" was added to the list of specified occupations, and the class "Lamp trimmers," which was used in 1902, was dropped. Wage-earners reported for the latter group in 1902 are included with "Other employees" in all of the comparative tables. It is probable that "Car and motor repairers" were reported in 1902 among "Electricians," "Mechanics," and "Other employees," but as it is impossible to separate them in the reports for that year, no comparison of this class can be made for the two censuses.

Only 6 companies, with 292.95 miles of track, failed to report the number of their employees in 1907;

while in 1902, 20 companies, with 417.03 miles of track, did not furnish such statistics.

The inquiry "Number of employees at specified daily rates of pay," which formed a part of the general inquiry at the census of 1902, was omitted from the schedule in 1907. At both censuses the inquiry called separately for the average number of salaried employees and wage-earners employed during the year. Where the reporting company did not operate its line during the entire year, it was instructed to calculate an average on the basis of a year. For instance, if a company was in operation only six months and employed 36 men regularly, the average for the year would be 18. The number of companies operating only a part of the year 1907 was 55, with 1,297 employees; in 1902 there were 57 such companies, with 2,066 employees. Some of these companies evidently reported the number required to operate the system under normal conditions instead of the number obtained by calculations made according to the method described. But in comparison with the totals—221,429 in 1907 and 140,769 in 1902—for all companies reporting, the number of these short-time employees is so insignificant as to have little effect.

The difficulties in the way of ascertaining a true average number are so great that it is believed the number representing the sum of the averages reported is not sufficiently accurate to justify its use for the computation of the average annual earnings.¹

Allowance for board or rent, if any, was included with the salaries and wages reported.

Conductors and motormen were numerically the most important classes of electric-railway employees, and they received more than one-half of the total amount paid in salaries and wages. With the exception of "Hostlers, stablemen, etc.," which class shows a decrease because of the continued disappearance of railways, repair wagons, etc., operated by animal power, every class of employees shows an increase in both number and wages.

The percentage of increase in the amount paid in salaries or wages is higher for every occupation than the percentage of increase in the number employed, from which fact it may be inferred that there has been

¹ Special reports of the Bureau of the Census, 1905, *Manufactures*, Part I, p. lxxxix.

an increase in average earnings, although the exact extent of the increase can not be determined from the statistics.

TABLE 156.—*Employees, salaries, and wages of operating companies, by classes of occupations: 1907 and 1902.*

CLASS.	1907	1902	Per cent of increase.
Number of companies.....	1 939	1 797	17.8
Salaried employees:			
Total number.....	11,700	7,128	64.1
Total salaries.....	\$12,909,466	\$7,439,716	73.5
Officers of corporations—			
Number.....	1,518	1,480	2.6
Salaries.....	\$3,852,252	\$2,990,745	28.8
Managers, superintendents, etc.—			
Number.....	2,094	1,327	57.8
Salaries.....	\$3,580,267	\$1,819,106	96.8
Clerks and bookkeepers—			
Number.....	8,084	4,321	87.2
Salaries.....	\$5,476,847	\$2,629,805	108.3
Wage-earners:			
Total average number.....	209,729	133,041	56.9
Total wages.....	\$184,081,633	\$80,770,449	71.0
Foremen—			
Average number.....	3,562	1,782	101.0
Wages.....	\$3,344,170	\$1,518,400	120.2
Inspectors—			
Average number.....	1,850	1,095	68.9
Wages.....	\$1,617,380	\$852,029	89.7
Conductors—			
Average number.....	60,032	40,141	49.6
Wages.....	\$38,234,158	\$24,025,204	59.1
Motormen—			
Average number.....	55,496	40,003	38.7
Wages.....	\$37,470,806	\$24,617,155	52.2
Starters—			
Average number.....	1,442	950	50.2
Wages.....	\$1,159,034	\$721,031	60.7
Switchmen—			
Average number.....	1,808	1,198	50.9
Wages.....	\$1,179,440	\$728,975	61.8
Road and track men—			
Average number.....	22,401	11,474	95.2
Wages.....	\$12,368,096	\$5,511,425	124.4
Linemen—			
Average number.....	3,666	2,294	60.2
Wages.....	\$2,831,897	\$1,553,478	82.3
Electricians—			
Average number.....	1,525	1,150	32.6
Wages.....	\$1,354,061	\$801,524	53.5
Car and motor repairers—			
Average number.....	13,476	(²)	
Wages.....	\$9,200,149	(²)	
Engineers—			
Average number.....	1,948	1,751	11.3
Wages.....	\$1,923,064	\$1,327,793	25.9
Dynamo and switchboard men—			
Average number.....	1,963	1,167	68.2
Wages.....	\$1,453,304	\$761,304	88.3
Firemen—			
Average number.....	3,282	2,694	21.5
Wages.....	\$2,309,819	\$1,735,647	33.1
Other mechanics—			
Average number.....	11,264	9,197	22.5
Wages.....	\$8,034,586	\$6,312,119	27.3
Hostlers, stablemen, etc.—			
Average number.....	1,132	1,345	15.8
Wages.....	\$722,795	\$813,425	9.9
Watchmen—			
Average number.....	1,454	921	57.9
Wages.....	\$789,181	\$497,103	58.8
All other employees—			
Average number.....	23,418	16,475	42.1
Wages.....	\$14,065,971	\$8,683,237	61.8

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 20 companies which failed to furnish this information.

³ Not reported separately.

⁴ Decrease.

In the percentage of increase "Clerks and bookkeepers" led among salaried employees in both number and salaries, while among wage-earners "Foremen" were first in number and "Road and track men" in wages.

At the census of 1902 the wages paid to conductors and motormen constituted 55.1 per cent of the total salaries and wages, and the amount was almost equally divided between the two classes, a slightly larger share going to motormen. But the increase in interurban roads and subways has so changed the relative distribution of the force that the wages of conductors

and motormen in 1907 formed only 50.1 per cent of the total, while the proportion paid conductors (25.3 per cent) slightly exceeded that for motormen (24.8 per cent). In 1907 the next largest class, aside from the group of "Other employees," was "Road and track men," for which the proportion of the total salaries and wages received was 8.2 per cent.

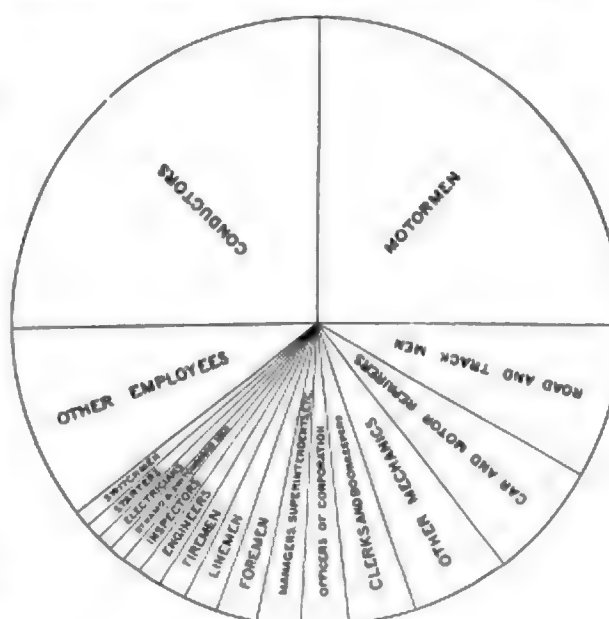
TABLE 157.—*Per cent distribution of total salaries and wages of operating companies, by classes of occupations: 1907 and 1902.*

CLASS.	1907	1902
Total.....	100.0	100.0
Officers of corporations.....	2.6	3.4
Managers, superintendents, etc.....	2.4	2.1
Clerks and bookkeepers.....	3.6	3.0
Foremen.....	2.2	1.7
Inspectors.....	1.1	1.0
Conductors.....	25.3	27.2
Motormen.....	24.8	27.9
Starters.....	0.5	0.8
Switchmen.....	0.8	0.8
Road and track men.....	8.2	6.2
Linemen.....	1.9	1.8
Electricians.....	0.9	1.0
Car and motor repairers.....	6.1	(¹)
Engineers.....	1.3	1.7
Dynamo and switchboard men.....	0.9	0.9
Firemen.....	1.5	2.0
Other mechanics.....	5.3	7.2
Hostlers, stablemen, etc.....	0.5	0.9
Watchmen.....	0.5	0.6
All other employees.....	9.3	9.9

¹ Not reported separately.

The 1907 percentages given in Table 157 are graphically expressed by the following diagram:

DIAGRAM 7.—*Salaries and wages, by classes of employees: 1907.*



The rank of the geographic divisions in the percentages of increase was the same for the number and the salaries of the salaried employees. The Western division had the largest percentages, followed by the South Central, South Atlantic, North Central, and North Atlantic divisions. This same order

is shown for the percentages of increase in number and amount paid wage-earners, except that the North Central division ranked third and the South Atlantic division was fourth.

TABLE 158.—EMPLOYEES, SALARIES, AND WAGES OF OPERATING COMPANIES, BY GEOGRAPHIC DIVISIONS: 1907 AND 1902.

DIVISION.	Cen-tries.	Number of companies.	SALARIED EMPLOYEES.		WAGE-EARNERS.								PER CENT OF TOTAL.			
			Number.	Salaries.	Total.		Conductors.		Motormen.		All other.		Salaried employees.		Wage-earners.	
					Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Number.	Salaries.	Average number.	Wages.
United States.....	1907	939	11,700	\$12,909,466	200,729	\$138,061,633	40,032	\$38,234,158.55	486	\$37,470,806.04	211	\$62,276,579	100.0	100.0	100.0	100.0
	1902	797	7,128	7,436,716	133,641	80,770,440	40,141	24,025,204.40	403	24,617,155.53	497	32,128,060	100.0	100.0	100.0	100.0
Percent of increase.....			17.8	64.1	73.5	69.9	71.0	49.6	89.1	38.7	32.2	76.1				
North Atlantic.....	1907	365	4,854	4,933,839	102,749	66,890,195	29,890	18,211,917.26	178	17,512,924.66	685	31,135,354	41.5	38.2	49.0	48.4
	1902	355	3,501	3,449,030	72,427	43,827,514	21,691	12,991,365.21	637	13,323,021.29	309	17,513,096	49.1	40.4	54.2	54.3
Percent of increase.....			2.8	38.6	43.1	41.9	37.8	40.2	21.5	31.4	59.8	77.8				
South Atlantic.....	1907	100	1,002	1,192,053	14,042	7,900,734	3,900	2,187,020	3,690	2,252,678	6,140	3,321,056	8.6	9.2	6.7	5.8
	1902	73	606	580,114	9,233	4,443,018	2,788	1,277,248	2,724	1,301,308	3,721	1,864,462	8.5	7.9	6.9	5.5
Percent of increase.....			33.3	65.3	102.3	79.2	40.1	71.2	46.7	73.1	65.0	88.9				
North Central.....	1907	293	3,475	4,088,813	62,445	41,670,004	17,712	11,002,675	16,712	11,684,210	28,020	18,083,719	29.7	31.7	29.8	30.2
	1902	235	2,392	2,392,200	37,203	23,041,466	11,234	7,034,208	10,813	6,961,146	15,150	9,046,032	30.9	32.2	27.8	28.5
Percent of increase.....			24.7	57.8	70.9	80.9	57.7	69.2	54.6	67.5	84.9	99.9				
South Central.....	1907	90	722	850,746	12,331	7,000,037	3,674	2,044,483	3,773	2,134,650	4,864	2,890,904	6.2	6.6	5.9	5.1
	1902	66	337	418,651	6,394	3,663,790	1,718	881,385	2,177	1,173,051	2,490	1,409,350	4.7	5.6	4.8	4.3
Percent of increase.....			26.4	114.2	103.2	103.8	113.9	132.0	73.3	82.0	95.4	104.4				
Western.....	1907	91	1,647	1,844,015	18,162	14,530,043	4,853	3,888,063	4,827	3,896,434	8,482	6,755,546	14.1	14.3	8.7	10.5
	1902	66	482	580,721	8,394	5,994,665	2,720	1,840,908	2,732	1,858,620	2,912	2,295,148	6.8	7.9	6.2	7.4
Percent of increase.....			37.9	241.7	212.2	116.6	78.4	111.2	75.4	109.1	191.3	194.3				

¹ Exclusive of 6 companies which failed to furnish this information.

² Exclusive of 20 companies which failed to furnish this information.

The absolute increases, however, were greatest in the North Atlantic division in all particulars except salaries, in which the North Central division was slightly ahead.

The larger rate of gain for the Western and South Central divisions and the smaller proportion con-

tributed by the North Atlantic states to the total in 1907 as compared with 1902 are in harmony with the statistics for traffic, income, and operating expenses.

Companies, grouped according to number of employees.—A grouping of the railway companies by number of employees is shown in Table 159.

TABLE 159.—OPERATING COMPANIES, CLASSIFIED ACCORDING TO NUMBER OF EMPLOYEES, BY GEOGRAPHIC DIVISIONS: 1907.

DIVISION.	Total number of companies.	NUMBER OF COMPANIES REPORTING EMPLOYEES.											
		Under 25.	25 but under 50.	50 but under 75.	75 but under 100.	100 but under 150.	150 but under 200.	200 but under 300.	300 but under 400.	400 but under 500.	500 but under 750.	750 but under 1,000.	1,000 and over.
United States.....	1939	319	180	111	60	73	35	46	20	22	18	10	45
North Atlantic.....	365	134	70	53	18	20	9	21	5	7	7	1	20
South Atlantic.....	100	35	18	11	4	14	3	5	3	3	1		3
North Central.....	293	80	56	28	24	29	17	11	6	8	6	3	14
South Central.....	90	26	21	12	6	6	3	5	2	2	3	2	2
Western.....	91	35	15	7	8	4	3	4	4	2	1	2	6

¹ Exclusive of 6 companies which failed to furnish this information.

Slightly more than one-third of the 939 companies had fewer than 25 employees in 1907. Most of these companies were in the North Atlantic division and the least number in the South Central division. Almost one-fifth of the companies employed from 25 to 50 persons. These companies also were most numerous in the North Atlantic division, while they were least numerous in the Western division. Of the 45 companies reporting 1,000 or more employees, nearly

one-half were in the North Atlantic and almost one-third in the North Central division.

Employee and wage statistics of operating companies, classified according to income from railway operations.—The ratios of the number of employees to miles of track, car mileage, and number of fare passengers carried depend upon various conditions. To be of the greatest value for comparisons, these ratios should be for companies situated in different localities and

operated as closely as possible under the same conditions. But the details that would be involved in such an arrangement are so great that it is imprac-

ticable for a census report. The grouping of the companies by size as measured by income develops some interesting features.

TABLE 160.—EMPLOYEE AND WAGE STATISTICS OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO INCOME FROM RAILWAY OPERATIONS: 1907 AND 1902.

	Census.	Total, all companies.	CLASSIFICATION GROUP.				
			\$1,000,000 and over. (A)	\$500,000 but less than \$1,000,000. (B)	\$250,000 but less than \$500,000. (C)	\$100,000 but less than \$250,000. (D)	Less than \$100,000. (E)
Number of companies.....	1907 1902	1,839 1,797	76 44	50 28	80 53	182 111	551 561
Miles of track.....	1907 1902	34,088.56 22,150.96	15,402.09 8,414.31	4,385.45 2,127.29	3,958.36 2,681.18	4,909.02 3,318.98	5,435.04 5,618.20
Car mileage.....	1907 1902	1,610,290,340 1,129,614,074	1,131,741,588 731,882,858	147,495,234 97,190,371	112,378,238 90,203,540	120,548,770 96,832,050	98,126,510 113,479,256
Number of fare passengers.....	1907 1902	7,422,296,331 4,723,902,759	5,622,329,267 3,357,796,250	584,895,974 389,317,716	438,070,013 323,182,416	451,566,780 320,718,499	323,414,297 333,867,878
Salaried employees:							
Number.....	1907 1902	11,700 7,128	6,641 3,731	1,102 439	1,053 631	1,366 806	1,536 1,519
Per 10 miles of track.....	1907 1902	3.43 3.22	4.31 4.43	2.51 2.06	2.66 2.35	2.79 2.43	2.83 2.70
Per 1,000,000 car miles.....	1907 1902	7.27 6.31	5.87 5.10	7.47 4.52	9.37 7.00	11.35 8.34	15.65 13.29
Per 1,000,000 fare passengers.....	1907 1902	1.58 1.51	1.18 1.11	1.88 1.13	2.40 1.96	3.03 2.52	4.72 4.55
Salaries.....	1907 1902	\$12,909,460 \$7,439,716	\$7,902,108 \$4,152,141	\$1,280,099 \$509,592	\$1,181,245 \$717,517	\$1,381,088 \$843,866	\$1,264,266 \$1,156,000
Per cent ratio of salaries to operating expenses.....	1907 1902	5.1 5.2	4.5 4.5	5.7 4.8	6.2 6.2	6.8 6.8	7.8 7.9
Per cent ratio of salaries to operating earnings.....	1907 1902	3.1 3.0	2.6 2.5	3.5 2.8	3.9 3.7	4.4 4.4	5.6 5.6
Wage-earners:							
Average number.....	1907 1902	209,729 133,641	150,321 86,814	17,286 12,063	14,224 11,173	15,636 10,961	12,262 12,640
Per 10 miles of track.....	1907 1902	61.52 60.31	97.00 103.17	39.42 56.06	33.95 41.67	31.85 33.03	22.56 22.60
Per 1,000,000 car miles.....	1907 1902	130.24 118.31	132.82 118.62	117.20 124.01	126.67 123.96	129.71 118.17	124.96 111.39
Per 1,000,000 fare passengers.....	1907 1902	28.26 28.29	26.74 25.85	29.55 31.04	32.47 34.57	34.63 34.18	37.88 37.86
Wages.....	1907 1902	\$128,081,633 \$80,770,449	\$101,436,272 \$54,764,832	\$11,511,975 \$6,906,243	\$8,965,964 \$6,456,208	\$9,364,600 \$6,323,210	\$6,812,742 \$6,417,966
Per cent ratio of wages to operating expenses.....	1907 1902	54.9 56.8	38.5 39.6	51.7 57.5	47.0 56.1	46.0 51.2	41.9 44.0
Per cent ratio of wages to operating earnings.....	1907 1902	31.0 32.7	34.1 32.6	31.8 33.2	29.6 33.6	29.5 33.9	30.2 31.2
Conductors—							
Average number.....	1907 1902	40,032 40,141	44,359 26,511	4,800 3,656	3,620 3,300	4,054 3,255	3,193 3,430
Wages.....	1907 1902	\$38,234,156 \$24,025,204	\$28,543,925 \$16,564,470	\$3,203,961 \$2,050,338	\$2,297,028 \$1,851,182	\$2,401,836 \$1,854,875	\$1,786,508 \$1,704,309
Motormen							
Average number.....	1907 1902	35,486 40,003	39,548 25,667	4,694 3,579	3,621 3,302	4,126 3,456	3,497 3,999
Wages.....	1907 1902	\$37,470,896 \$24,617,155	\$27,488,896 \$16,982,757	\$3,200,744 \$2,046,777	\$2,336,445 \$1,870,880	\$2,493,735 \$1,986,037	\$1,961,076 \$2,020,114
All other employees—							
Average number.....	1907 1902	94,211 53,497	66,414 34,636	7,786 4,819	6,963 4,571	7,456 4,290	5,573 5,221
Per 10 miles of track.....	1907 1902	27.64 24.14	43.12 41.16	17.75 22.65	17.65 17.05	15.19 12.81	10.25 9.29
Per 1,000,000 car miles.....	1907 1902	56.51 47.36	58.68 47.32	52.79 40.68	62.14 50.67	61.85 43.88	56.78 46.01
Per 1,000,000 fare passengers.....	1907 1902	12.69 11.32	11.81 10.32	13.31 12.41	15.94 14.14	16.51 13.25	17.12 15.64
Wages.....	1907 1902	\$62,376,579 \$32,128,090	\$45,003,451 \$21,507,005	\$5,107,270 \$2,711,128	\$4,331,611 \$2,734,176	\$4,469,089 \$2,481,708	\$3,065,188 \$2,083,473

¹ Exclusive of 6 companies which failed to furnish information in regard to employees and wages.

² Exclusive of 20 companies which failed to furnish information in regard to employees and wages.

In the case of the total number of operating companies shown, there was an increase in the number of salaried employees and wage-earners in 1907 as compared with 1902 for each unit of measurement, except wage-earners per fare passenger carried, and for this the decrease was very slight, being merely from 28.29 per million passengers in 1902 to 28.26 per million in 1907. While the number of salaried employees per 10 miles of track was largest (4.31) in 1907 for companies with an income of \$1,000,000 and over, the number (2.83) for the small companies of Class E was somewhat higher than that for the larger companies of Classes D, C, and B. A certain number of salaried officials and clerks is necessary to maintain a corporate organization, but the number of such employees does not increase at the same rate as the trackage. The averages for this class of employees were higher in 1907 than in 1902 for each income class, except the large companies composing Class A. Consolidations, which were especially active among the

largest companies, generally operate to reduce the administrative and salaried force. Moreover, the increasing density of traffic in the large centers in which the big companies operate tends to lower the number of salaried officials per car mile and per passenger unit for those companies.

Wage-earners are much more intimately associated with track and traffic than salaried officials are, and the number of wage-earners upon a track basis is necessarily greater for the larger companies. The reverse is true, however, when the number of wage-earners is compared with the number of fare passengers carried.

Employee and wage statistics of operating companies with and without commercial lighting, and of part-time companies.—The association of electric light and power business with that of electric railways naturally affects the ratio of employees and wages to track and other units of measurement.

TABLE 161.—EMPLOYEE AND WAGE STATISTICS OF OPERATING COMPANIES WITH AND WITHOUT COMMERCIAL LIGHTING, AND OF PART-TIME COMPANIES: 1907 AND 1902.

	TOTAL, ALL COMPANIES.		CLASSIFICATION GROUP.					
	1907	1902	Without commercial lighting. ¹		With commercial lighting.		Part-time.	
			1907	1902	1907	1902	1907	1902
Number of companies.....	939	797	700	628	4175	112	55	57
Miles of track.....	34,088.56	22,159.96	26,604.75	18,908.43	6,883.65	2,460.36	800.16	831.17
Car mileage.....	1,610,290,340	1,129,614,074	1,381,602,281	1,031,551,060	228,648,250	85,042,306	5,279,800	13,023,049
Number of fare passengers.....	7,422,296,331	4,723,902,759	6,497,169,567	4,380,330,656	912,907,187	305,833,612	12,206,577	37,738,491
Salaried employees:								
Number.....	11,700	7,128	8,941	5,954	2,619	980	140	184
Per 10 miles of track.....	3.43	3.22	3.39	3.16	3.80	4.02	1.75	2.21
Per 1,000,000 car miles.....	7.27	6.31	6.47	5.77	11.71	11.64	26.52	14.13
Per 1,000,000 fare passengers.....	1.58	1.51	1.38	1.36	2.87	3.24	11.41	4.88
Salaries.....	\$12,909,466	\$7,459,716	\$10,053,426	\$6,320,132	\$2,799,382	\$908,490	\$86,658	\$121,124
Per cent ratio of salaries to operating expenses.....	5.1	5.2	4.8	4.9	6.7	7.8	7.4	8.4
Per cent ratio of salaries to operating earnings.....	3.1	3.0	2.9	2.8	4.0	4.5	6.3	4.9
Wage-earners:								
Average number.....	209,729	133,641	175,365	119,261	33,187	12,498	1,157	1,582
Per 10 miles of track.....	61.52	60.31	66.42	63.21	48.21	50.80	14.66	22.64
Per 1,000,000 car miles.....	130.24	118.31	126.96	115.61	148.42	146.95	219.14	144.55
Per 1,000,000 fare passengers.....	28.26	28.29	26.99	27.23	36.36	40.87	94.30	69.87
Wages.....	\$128,061,633	\$80,770,449	\$117,178,850	\$73,330,581	\$20,526,394	\$6,741,201	\$376,479	\$698,667
Per cent ratio of wages to operating expenses.....	54.9	56.8	56.1	57.3	49.4	52.5	42.1	48.5
Per cent ratio of wages to operating earnings.....	33.0	32.7	33.7	32.9	29.8	30.5	30.2	28.2
Conductors:								
Average number.....	60,032	40,141	51,602	36,503	6,145	3,090	285	548
Wages.....	\$38,234,158	\$24,025,294	\$33,203,733	\$22,281,221	\$1,946,420	\$1,545,874	\$86,036	\$198,109
Motormen:								
Average number.....	55,495	40,061	46,903	36,178	8,280	3,235	283	590
Wages.....	\$37,470,996	\$24,617,155	\$32,295,879	\$22,723,255	\$5,098,336	\$1,690,085	\$86,681	\$213,814
All other employees:								
Average number.....	94,211	53,497	76,860	46,580	16,752	6,173	579	744
Per 10 miles of track.....	27.64	24.14	29.12	24.60	24.34	25.69	7.24	8.95
Per 1,000,000 car miles.....	58.51	47.36	55.65	45.16	74.92	72.59	109.66	57.14
Per 1,000,000 fare passengers.....	12.69	11.32	11.81	10.63	18.35	20.18	47.19	19.71
Wages.....	\$52,376,679	\$32,128,090	\$51,679,238	\$28,320,105	\$10,493,548	\$3,515,241	\$203,793	\$286,744

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of 6 companies which failed to furnish information in regard to employees and wages.

³ Exclusive of 20 companies which failed to furnish information in regard to employees and wages.

⁴ Exclusive of 2 part-time companies.

It might be expected that companies with commercial lighting would show a larger number of wage-earners per mile of track than those without commercial lighting, but such is not the case, for the reasons that comparatively few additional employees are required for the operation of power plant and the maintenance of line used jointly for railway service

and commercial light and power purposes, and that companies not selling light and power usually operate in great cities where relatively more employees are required to care for the heavy traffic. Companies selling light and power, however, show a relatively larger number of employees per car mile and per fare passenger. It is also of interest to note that in the

companies "with commercial lighting"—that is, in the smaller companies—the increase in the number of conductors reported is exactly equal to the increase in the number of motormen, 5,055. In the group of "Without commercial lighting," therefore, occurs the whole excess in the increase in the number of conductors referred to on page 199.

The averages for the part-time railways are variable

and unreliable because of the peculiar conditions under which they were operated.

Employee and wage statistics of operating companies, classified according to kind of system and character of service.—Operating conditions of elevated and subway railways as compared with surface lines, and of interurban lines as compared with urban systems, are very different, as shown by the ratios in the following table:

TABLE 162.—EMPLOYEE AND WAGE STATISTICS OF OPERATING COMPANIES, CLASSIFIED ACCORDING TO KIND OF SYSTEM AND CHARACTER OF SERVICE: 1907.

	CLASSIFICATION GROUP.					
	Total, all companies.	Kind of system.		Character of service.		
		Electric elevated and subway railways. ¹	Electric surface railways. ¹	Selected interurban lines.	Selected small urban roads.	All other railways.
Number of companies.....	9,939	6	933	50	100	789
Miles of track.....	34,088.56	420.40	33,648.16	5,507.11	540.69	27,900.76
Car mileage.....	1,610,290,340	143,634,475	1,466,655,865	106,888,537	8,510,860	1,494,890,943
Number of fare passengers.....	7,422,266,331	636,653,072	6,786,613,259	303,238,360	24,456,606	7,004,571,145
Salaried employees:						
Number.....	11,700	362	11,338	1,074	156	10,470
Per 10 miles of track.....	3.43	8.61	3.37	1.93	2.78	3.74
Per 1,000,000 car miles.....	7.27	2.52	7.73	10.05	18.33	7.00
Per 1,000,000 fare passengers.....	1.58	0.57	1.67	3.54	6.38	1.48
Salaries.....	\$12,909,466	\$560,317	\$12,340,149	\$1,086,546	\$83,534	\$11,730,386
Per cent ratio of salaries to operating expenses.....	5.1	3.8	5.2	6.4	7.4	5.0
Per cent ratio of salaries to operating earnings.....	3.1	1.7	3.2	3.7	5.9	3.0
Wage-earners:						
Average number.....	300,729	12,501	197,228	14,122	954	194,653
Per 10 miles of track.....	61.32	297.36	58.58	25.37	17.01	66.62
Per 1,000,000 car miles.....	130.24	87.03	134.47	132.12	112.09	130.21
Per 1,000,000 fare passengers.....	28.28	19.67	28.06	46.57	89.01	27.44
Wages.....	\$138,081,633	\$8,588,493	\$129,493,140	\$8,461,135	\$481,531	\$129,138,967
Per cent ratio of wages to operating expenses.....	54.9	56.8	54.8	50.1	42.4	55.4
Per cent ratio of wages to operating earnings.....	33.0	25.4	33.7	29.0	34.2	33.3
Conductors—						
Average number.....	60,032	3,597	56,435	2,941	246	56,845
Wages.....	\$38,234,158	\$2,142,575	\$36,091,583	\$1,618,710	\$131,086	\$36,284,302
Motormen—						
Average number.....	55,486	985	54,501	2,948	325	52,213
Wages.....	\$37,470,896	\$1,030,171	\$36,440,725	\$1,564,945	\$179,008	\$35,426,943
All other employees—						
Average number.....	94,211	7,919	86,292	8,233	383	85,595
Per 10 miles of track.....	27.64	188.37	25.63	14.79	6.83	30.61
Per 1,000,000 car miles.....	58.51	55.13	58.84	77.02	45.00	57.26
Per 1,000,000 fare passengers.....	12.69	12.46	12.72	27.15	15.66	12.06
Wages.....	\$62,376,579	\$3,415,747	\$58,960,832	\$4,777,480	\$171,437	\$57,427,602

¹ Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

² Includes the statistics for the few railways not operated by electricity.

³ Exclusive of 6 companies which failed to furnish information in regard to employees and wages.

The number of wage-earners per 10 miles of track for elevated and subway railways is over five times as great as the corresponding number for ordinary surface railways, and over ten times as great as that for the selected interurban lines. The number of wage-earners per million fare passengers, on the other hand, was highest for the interurban lines. The number of wage-earners other than conductors and motormen was largest, as compared with the trackage, for the elevated and subway group, and largest, as compared with the car mileage and fare passengers, for the selected interurban lines.

Relation of salaries and wages to operating expenses and operating earnings.—There is an apparent inconsistency in the statistics of employees and wages when the salaries and wages of the occupation groups are compared with the purely wage accounts of the operating expenses (Table 125). The main reason for the disagreement in the two accounts lies in the fact that the itemized statement of operating expenses is a

standardized account prescribed by the American Street and Interurban Railway Accountants' Association, while there is no uniform classification in use relating particularly to employees and wages. The census classification aims to group the employees roughly according to the general occupations of the industry, and when an employee assigned to a particular group in the wage statistics was engaged in more than one kind of work during the year his wages were distributed over several accounts under operating expenses. Conductors and motormen are less liable to be affected by the shifting of work than the other classes of employees, but even for these classes there is a difference in the two accounts, as for example, in Massachusetts, where the wages of conductors and motormen as reported in the wage section exceed the amounts shown in the operating expenses by \$238,075 and \$139,926, respectively. Probably the principal cause for this difference is the fact that the wages of conductors and motormen as they appear in operating

expenses represent only wages of those engaged in operating revenue cars.

The causes affecting the general operating ratio, as stated elsewhere (see p. 175), are applicable as well to a consideration of the per cent ratio of salaries and wages to operating expenses, which for all classes of operating companies shows a decline from 62.1 per cent in 1902 to 60.1 per cent in 1907.

TABLE 163.—Per cent ratio of salaries and wages to operating expenses, by groups of companies: 1907 and 1902.

CLASSIFICATION GROUP.	PER CENT RATIO.					
	Total.		Salaries.		Wages.	
	1907	1902	1907	1902	1907	1902
Total, all companies.....	60.1	62.1	5.1	5.2	54.9	56.8
A. \$1,000,000 and over.....	63.0	64.2	4.5	4.5	58.5	59.7
B. \$500,000 but less than \$1,000,000.....	57.4	62.3	5.7	4.8	51.7	57.5
C. \$250,000 but less than \$500,000.....	53.2	62.3	6.2	6.2	47.0	56.1
D. \$100,000 but less than \$250,000.....	52.8	58.9	6.8	6.8	46.0	52.1
E. Less than \$100,000.....	49.7	51.9	7.8	7.9	41.9	44.0
Without commercial lighting ¹	60.9	62.3	4.8	4.9	56.1	57.3
With commercial lighting.....	56.1	60.3	6.7	7.8	49.4	52.5
Part-time.....	49.5	57.0	7.4	8.4	42.1	48.6
Electric elevated and subway railways ²	60.5	(³)	3.8	(³)	56.8	(³)
Electric surface railways ⁴	60.1	(³)	5.2	(³)	54.8	(³)
Selected Interurban lines.....	56.5	(³)	6.4	(³)	50.1	(³)
Selected small urban roads.....	49.8	(³)	7.4	(³)	42.4	(³)
All other railways.....	60.4	(³)	5.0	(³)	55.4	(³)

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

³ This classification not made for the census of 1902.

⁴ Includes the statistics for the few railways not operated by electricity.

For the groups of companies, classified according to size as measured by income, the ratios for the amounts expended in salaries and wages combined uniformly increase from low proportions for the smallest companies to high ones for the largest companies. This is just the reverse of the movement of operating ratios, which ranged highest for the small companies and lowest for the large companies. If, however, the ratios are considered for salaries and wages separately, a marked difference is found. Since consolidation into larger companies tends to reduce the number of salaried employees, the ratios of salaries to operating expenses decrease steadily as the companies grow larger. The reverse is true of the ratios of wages, because the large companies, operating lines in the more densely populated districts, require a comparatively larger force of workmen and a correspondingly greater outlay in wages. Both of these general tendencies are well illustrated by the ratios given for the six large electric elevated and subway railways. The ratio of salaries to expenses for these railways (3.8) is the lowest for any class of companies and the ratio of wages (56.8), next to the highest. The ratio of wages to total operating expenses is lower for electric light and power service than for railway service, as shown by the ratios of wages for companies "with commercial lighting" and for companies "without commercial lighting." Consequently

the expenses incident to electric-light service, as well as the lower rates of wages per man, are the important factors tending to reduce the ratio of wages to total operating expenses for the smaller companies.

Although the range from lowest to highest is practically the same in the case of the ratios for 1902 and those for 1907, it is clear from the comparison that, particularly in Classes B, C, and D, the salaries and wages combined increased between the two censuses at a much slower rate than did other expenses, since they formed a smaller proportion of the total expense in the later year.

The following statement shows the per cent ratio of total salaries and wages to operating expenses, by states, for the two census years, arranged in the order of the ratios. There is a wide range in the percentages for the two censuses, but excluding South Dakota and Nevada, which were not represented in 1902, and which were the highest and lowest states in rank in 1907, there is a very considerable contraction of the range for 1907. There are so many varying conditions and disturbing elements affecting the ratios that a comparison of the percentages, by states, should be made with caution.

Per cent ratio of salaries and wages to operating expenses, by states: 1907 and 1902.

1907		1902	
State.	Per cent ratio.	State.	Per cent ratio.
South Dakota.....	77.9	Idaho.....	40.2
Rhode Island.....	68.9	California.....	74.2
Colorado.....	68.6	Wisconsin.....	72.5
Nebraska.....	68.7	Georgia.....	63.6
Maryland.....	68.3	Oregon.....	67.0
Washington.....	65.6	Maryland.....	66.8
Oregon.....	65.2	Louisiana.....	66.4
Connecticut.....	65.2	Indiana.....	66.3
California.....	64.0	Ohio.....	65.9
New York.....	63.7	Kansas.....	65.6
Michigan.....	63.4	District of Columbia.....	65.0
District of Columbia.....	62.4	Pennsylvania.....	64.7
Louisiana.....	62.2	Washington.....	64.0
Wisconsin.....	61.2	Minnesota.....	63.4
Massachusetts.....	60.9	Colorado.....	63.2
Utah.....	60.8	Alabama.....	62.2
Pennsylvania.....	60.5	Missouri.....	62.1
Missouri.....	60.3	New York.....	62.1
United States.....	60.1	United States.....	62.1
Kansas.....	59.2	Michigan.....	62.0
Maine.....	58.7	West Virginia.....	61.0
Minnesota.....	58.7	Iowa.....	60.8
Montana.....	58.4	Connecticut.....	60.7
Illinois.....	58.1	New Jersey.....	60.6
North Dakota.....	57.3	Arkansas.....	60.5
Arkansas.....	57.3	Rhode Island.....	60.4
Indiana.....	56.5	Massachusetts.....	60.3
Ohio.....	56.0	Texas.....	60.0
Tennessee.....	55.5	Florida.....	59.7
Iowa.....	55.3	Utah.....	59.6
West Virginia.....	54.5	Nebraska.....	57.6
New Jersey.....	54.0	New Mexico.....	57.3
Idaho.....	53.8	Illinois.....	56.3
Florida.....	53.6	Tennessee.....	55.5
Georgia.....	53.5	Vermont.....	55.5
Delaware.....	52.4	Montana.....	53.0
Oklahoma.....	52.2	Maine.....	51.7
Kentucky.....	51.6	Arizona.....	50.8
Texas.....	50.0	Virginia.....	49.7
New Mexico.....	50.0	Delaware.....	49.3
Vermont.....	49.3	North Carolina.....	49.0
Mississippi.....	49.5	Kentucky.....	49.2
Virginia.....	49.5	New Hampshire.....	48.9
Arizona.....	49.1	Mississippi.....	48.8
North Carolina.....	47.4	South Carolina.....	44.9
Alabama.....	45.8		
South Carolina.....	45.0		
New Hampshire.....	43.6		
Nevada.....	36.5		

The ratio of combined salaries and wages to operating earnings is very nearly the same in each of the classes of companies, classified according to size as measured by income, while the same general tendency of the ratios of salaries to decrease and of wages to increase as the companies increase in size is observable in this comparison as well as in that based upon operating expenses.

TABLE 164.—Per cent ratio of salaries and wages to operating earnings, by groups of companies: 1907 and 1902.

CLASSIFICATION GROUP.	PER CENT RATIO.					
	Total.		Salaries.		Wages.	
	1907	1902	1907	1902	1907	1902
Total, all companies.....	36.1	35.7	3.1	3.0	33.0	32.7
A. \$1,000,000 and over.....	36.8	35.1	2.6	2.5	34.1	32.6
B. \$500,000 but less than \$1,000,000.....	35.0	33.9	3.5	2.8	31.5	33.2
C. \$250,000 but less than \$500,000.....	33.6	37.3	3.9	3.7	29.6	33.6
D. \$100,000 but less than \$250,000.....	33.8	37.3	4.4	4.4	29.5	32.9
E. Less than \$100,000.....	35.8	36.8	5.6	5.6	30.2	31.2
Without commercial lighting ¹	36.6	35.8	2.9	2.8	33.7	32.9
With commercial lighting.....	33.8	33.0	4.0	4.5	29.8	30.5
Part-time.....	35.6	33.1	5.2	4.9	30.3	28.2
Electric elevated and subway railways ²	27.0	(³)	1.7	(³)	25.4	(³)
Electric surface railways ⁴	36.9	(³)	2.2	(³)	33.7	(³)
Selected interurban lines.....	32.7	(³)	3.7	(³)	29.0	(³)
Selected small urban roads.....	40.2	(³)	5.9	(³)	34.2	(³)
All other railways.....	36.3	(³)	3.0	(³)	33.3	(³)

¹ Includes all full-time operating companies not engaged in regular light and power business, without regard to kind of power used.

² Exclusive of the mixed elevated, subway, and surface systems in Boston, Mass., and Philadelphia, Pa.

³ This classification not made for the census of 1902.

⁴ Includes the statistics for the few railways not operated by electricity.

Employees, salaries, and wages, by states.—Table 165 compares, by states and geographic divisions, the number and compensation for each class of employees reported at the censuses of 1907 and 1902.

The number of conductors in the United States in 1907 exceeded the number of motormen by 4,546, whereas the excess in 1902 was only 138. This excess of conductors over motormen in 1907 was reported chiefly from New York, Illinois, Pennsylvania, and Massachusetts. It will also be seen that in 1907 the total amount paid for wages of conductors exceeded that for motormen, while at the census of 1902 the aggregate wages of motormen were slightly the larger. In general, the rate of pay for motormen is somewhat higher than that for conductors, but this difference was not sufficient to offset the large increase in the number of conductors as reported for 1907. In the earlier days of horse cars only one employee, the driver, was necessary to operate the car, but with the introduction of mechanical traction two were required—a motorman and a conductor; and later, with the development of elevated and subway railways, interurban lines, and large city systems, where cars are coupled into trains, the number of employees required to operate the units of rolling stock has largely increased. It is a common practice when trailers are used to assign a conductor to each car in the train, especially during the period of congested traffic. It is probable, also, that other classes of trainmen on the elevated and subway lines were classed as conductors.

STREET AND ELECTRIC RAILWAYS.

TABLE 165.—EMPLOYEES, SALARIES, AND WAGES OF OPERATING COMPANIES.

STATE OR TERRITORY.	Cen- sus.	Num- ber of com- panies.	SALARIED EMPLOYEES.							
			Total.		Salaried officers of corporations.		Other officers, managers, superin- tendents, etc.		Clerks and book- keepers.	
			Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.
1 United States.....	1907	1939	11,700	\$12,909,106	1,518	\$3,852,252	2,094	\$3,580,367	8,088	\$5,476,847
2	1902	1797	7,128	7,439,716	1,480	2,980,745	1,327	1,819,166	4,321	2,629,806
3 North Atlantic division.....	1907	365	4,854	4,933,819	627	1,399,682	811	1,307,853	3,416	2,226,302
4	1902	355	3,501	3,449,030	631	1,216,856	659	895,024	2,211	1,337,150
5 Maine.....	1907	17	88	80,675	20	31,422	19	21,237	49	28,018
6	1902	19	65	57,218	20	22,909	11	14,064	34	20,156
7 New Hampshire.....	1907	16	39	42,426	12	15,660	12	17,024	15	9,742
8	1902	7	25	20,588	8	9,088	5	5,924	12	5,576
9 Vermont.....	1907	10	34	23,456	18	9,803	8	9,770	8	3,883
10	1902	9	25	13,733	13	6,046	6	5,730	6	1,967
11 Massachusetts.....	1907	62	1,041	1,060,188	145	329,966	179	274,807	716	455,415
12	1902	74	896	912,549	131	296,635	236	273,777	529	372,137
13 Rhode Island.....	1907	5	126	119,400	19	26,700	16	29,401	100	61,400
14	1902	7	37	44,456	10	25,777	4	3,324	23	15,355
15 Connecticut.....	1907	8	222	189,420	21	36,492	25	41,684	176	111,244
16	1902	21	185	221,561	56	127,904	28	31,345	101	60,312
17 New York.....	1907	101	1,877	1,987,942	170	463,349	211	487,947	1,476	1,036,646
18	1902	96	1,221	1,127,405	188	428,451	136	230,010	897	495,344
19 New Jersey.....	1907	24	431	367,073	43	127,342	96	124,361	292	115,370
20	1902	25	276	251,795	53	107,036	50	57,763	173	86,906
21 Pennsylvania.....	1907	122	996	1,063,259	187	357,139	225	301,624	584	404,496
22	1902	97	771	799,725	152	222,921	183	207,497	436	279,307
23 South Atlantic division.....	1907	100	1,002	1,192,053	168	377,451	199	355,557	635	459,045
24	1902	75	606	589,114	159	260,940	108	140,131	339	188,043
25 Delaware.....	1907	4	18	24,106	5	8,058	5	9,400	8	6,648
26	1902	3	15	11,581	9	6,400	2	2,460	4	2,721
27 Maryland and District of Columbia.....	1907	19	388	441,266	37	129,035	41	76,914	310	235,317
28	1902	18	248	251,002	30	89,949	35	52,253	183	108,830
29 Virginia.....	1907	22	189	226,782	56	162,856	44	60,910	99	54,118
30	1902	16	106	79,383	47	42,162	19	17,706	41	18,525
31 West Virginia.....	1907	15	73	81,790	13	21,600	26	37,561	34	22,629
32	1902	8	46	46,277	13	26,284	10	6,820	23	13,173
33 North Carolina.....	1907	11	69	66,516	16	22,659	15	19,517	38	24,340
34	1902	7	42	28,767	15	14,275	5	6,625	22	7,867
35 South Carolina.....	1907	7	49	65,994	14	35,740	13	17,734	22	12,520
36	1902	7	40	31,212	13	17,260	12	9,386	15	4,566
37 Georgia.....	1907	12	159	192,620	22	48,600	29	66,710	107	77,229
38	1902	10	72	101,911	20	46,222	18	35,070	34	20,619
39 Florida.....	1907	10	58	92,970	5	8,813	26	57,911	27	26,246
40	1902	6	37	39,981	12	18,308	9	9,931	17	11,752
41 North Central division.....	1907	203	3,475	4,088,813	481	1,444,466	604	1,133,185	2,300	1,511,162
42	1902	235	2,202	2,392,200	461	1,080,887	406	550,501	1,335	800,812
43 Ohio.....	1907	73	862	993,899	151	364,952	210	303,323	499	325,614
44	1902	62	563	541,576	131	208,097	91	118,452	341	153,427
45 Indiana.....	1907	23	490	475,809	64	198,932	106	125,858	319	181,019
46	1902	26	179	181,167	52	93,060	30	35,000	94	53,107
47 Illinois.....	1907	70	811	1,099,560	99	369,423	158	276,777	554	400,390
48	1902	48	535	669,518	97	237,995	88	132,173	350	279,350
49 Michigan.....	1907	24	310	332,679	43	124,433	43	71,435	233	136,811
50	1902	24	256	292,902	53	125,835	40	58,094	154	78,873
51 Wisconsin.....	1907	20	249	237,311	29	58,592	38	97,393	182	81,356
52	1902	17	173	116,346	20	53,591	28	32,443	115	60,312
53 Minnesota.....	1907	5	118	215,419	9	90,060	17	42,553	92	73,906
54	1902	5	88	110,755	9	43,234	15	26,995	64	37,526
55 Iowa.....	1907	24	172	184,793	33	68,011	35	66,898	104	66,874
56	1902	22	87	88,229	29	47,738	13	14,623	45	25,898
57 Missouri.....	1907	14	331	441,508	23	127,858	53	112,508	255	201,142
58	1902	16	272	340,013	33	136,140	87	103,116	153	100,757
59 North and South Dakota ¹	1907	5	6	5,574	1	420	3	3,400	2	1,754
60 Nebraska.....	1907	6	50	65,560	9	46,081	12	23,800	29	25,688
61	1902	4	22	26,610	10	17,007	1	1,875	11	7,729
62 Kansas.....	1907	17	68	99,712	18	26,704	19	26,270	31	16,738
63	1902	11	20	25,184	17	16,590	5	4,730	8	3,864

¹ Exclusive of 6 companies which failed to furnish this information.² Exclusive of 20 companies which failed to furnish this information.

EMPLOYEES, SALARIES, AND WAGES.

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BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902.

WAGE-EARNERS.													
Total.		Foremen.		Inspectors.		Conductors.		Motormen.		Starters.		Switchmen.	
Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
209,729	\$138,081,033	3,582	\$3,344,170	1,850	\$1,617,390	60,032	\$38,234,158	55,486	\$37,470,896	1,442	\$1,159,034	1,806	\$1,179,440
133,641	80,770,449	1,782	1,518,400	1,065	852,029	40,141	24,025,204	40,003	24,617,155	960	721,031	1,198	728,975
102,749	66,890,195	1,470	1,361,024	912	775,745	29,880	18,211,917	26,178	17,512,624	945	740,678	1,230	780,143
72,427	43,827,514	731	681,412	642	521,176	21,681	12,901,306	21,537	13,323,021	635	483,109	908	565,519
1,271	788,791	25	20,875	5	3,947	308	188,496	313	191,256	7	4,776	3	1,437
969	526,062	11	3,362	1	1,000	238	141,941	239	142,135	8	3,660	1	500
576	347,899	20	16,720	9	5,958	184	102,779	180	102,916	5	4,334	1	500
357	206,823	4	3,505	2	1,601	123	67,679	123	67,680	5	3,631	1	500
232	133,059	11	8,700	1	800	69	37,950	65	36,306	1	1,000	1	500
165	97,823	7	4,920	1	641	55	33,083	56	34,109	1	1,000	1	500
17,255	11,841,012	273	270,694	124	112,635	4,974	3,351,408	4,802	3,374,382	420	305,011	98	51,485
13,958	8,080,513	193	186,795	114	90,286	4,084	2,660,947	4,001	2,711,885	102	160,436	162	96,153
2,800	1,771,086	56	63,929	13	11,237	771	426,964	779	438,960	10	8,178	12	5,460
1,609	1,009,422	29	27,005	15	12,770	424	304,091	419	300,305	6	5,017	16	8,830
4,402	2,975,780	171	163,491	32	29,823	1,141	751,187	1,141	751,331	34	27,601	23	6,863
2,538	1,462,800	48	38,202	15	10,654	780	442,579	778	442,425	15	12,000	13	6,079
46,001	30,431,815	447	423,213	517	440,411	12,940	7,625,878	9,746	6,894,044	317	275,281	767	535,713
33,162	19,900,755	205	179,159	316	261,588	9,661	5,538,938	9,304	5,796,023	202	208,182	591	393,121
6,308	3,904,462	73	69,534	60	49,117	1,965	1,172,463	1,971	1,196,136	79	63,483	51	15,968
3,880	2,370,078	71	63,230	85	68,270	1,237	745,342	1,218	753,799	90	69,710	45	18,990
23,844	14,696,271	394	323,878	151	121,837	7,508	4,554,662	7,179	4,424,563	73	52,014	274	156,094
15,721	9,286,237	168	146,974	94	75,486	5,030	2,086,195	5,479	3,074,740	57	41,964	81	39,646
14,042	7,960,754	222	185,244	85	67,164	3,906	2,187,020	3,906	2,262,678	133	105,676	80	35,177
9,233	4,443,018	135	92,630	43	26,138	2,788	1,277,248	2,724	1,301,308	76	52,033	55	24,175
371	246,225	4	3,300	6	3,608	128	87,080	128	87,144	4	2,680	2	1,110
236	166,104	4	2,830	1	913	82	60,080	82	60,080	3	2,801	2	1,278
3,633	3,413,062	80	74,455	7	6,498	1,739	1,002,673	1,813	1,052,082	70	69,991	43	21,367
4,323	2,906,191	38	26,837	3	2,700	1,432	720,838	1,372	732,196	52	35,564	40	19,422
2,542	1,386,240	11	8,734	20	14,391	605	353,112	610	359,742	37	23,413	12	5,439
960	423,319	30	17,548	5	3,155	230	114,522	247	114,328	2	1,330	9	2,206
1,234	757,082	34	26,571	6	4,140	324	212,580	321	211,345	5	4,440	1	1,000
621	352,003	13	9,890	2	1,200	195	110,890	204	118,573	1	2,630	1	1,000
610	285,728	18	15,366	7	5,437	163	68,846	165	70,117	1	600	2	1,008
376	129,286	10	7,292	2	1,200	94	29,088	95	29,762	3	1,020	2	263
616	277,656	26	20,770	5	3,300	148	68,886	151	67,527	2	1,248	3	1,151
372	147,979	16	12,396	4	2,920	113	37,931	113	38,277	1	455	1	300
2,294	1,173,846	28	22,612	24	23,345	606	297,288	616	302,376	9	8,580	11	2,422
1,971	755,355	15	9,871	20	12,923	493	158,480	512	170,243	8	6,206	1	606
742	419,970	15	14,396	10	6,214	193	98,086	192	102,345	5	3,814	7	3,460
374	162,781	9	6,206	6	4,097	100	39,369	90	37,831	3	1,426	1	1,000
62,445	41,670,004	1,236	1,120,415	532	448,221	17,713	11,902,675	16,712	11,064,210	261	206,603	373	273,923
37,233	23,041,446	608	476,959	265	186,089	11,234	7,034,208	10,813	6,961,146	189	137,550	175	97,194
15,061	9,356,596	249	212,731	109	91,829	4,235	2,680,968	4,253	2,734,420	88	69,744	52	32,082
9,451	5,475,397	155	124,191	117	80,307	2,910	1,063,907	3,019	1,761,352	50	35,425	44	19,051
5,239	3,081,212	121	84,709	53	40,829	1,151	718,085	1,174	750,336	14	8,437	2	1,173
2,448	1,289,718	70	47,130	12	10,271	637	352,110	674	364,174	4	2,660	2	546
19,686	13,827,026	341	300,688	151	112,172	6,045	4,247,358	4,876	3,708,417	65	57,653	235	197,431
11,057	7,367,270	120	106,138	37	28,530	3,538	2,444,630	2,738	2,094,870	41	33,273	96	62,457
5,632	3,819,074	109	166,245	97	85,253	1,465	943,140	1,509	976,712	42	35,111	11	6,883
3,192	2,003,174	78	45,791	51	34,229	895	592,063	951	631,592	30	35,677	10	4,415
2,630	1,742,823	37	36,902	12	11,352	647	438,799	660	470,949	2	755	1	365
2,042	1,300,421	61	39,318	6	2,980	406	280,288	477	310,462	4	2,520	1	365
2,417	1,854,274	43	48,630	23	21,579	747	579,924	776	610,387	12	11,001	34	13,531
1,509	979,044	42	35,218	7	5,400	475	290,127	482	294,234	8	5,220	12	5,790
2,147	1,378,258	44	35,808	7	5,940	559	360,823	566	394,061	15	13,041	1	660
1,516	799,671	30	25,578	17	10,700	377	177,029	443	230,912	5	3,720	1	500
7,619	5,382,123	213	201,387	64	62,113	2,255	1,583,646	2,245	1,602,016	9	7,321	43	21,545
5,186	3,432,170	56	43,395	13	9,980	1,767	1,109,345	1,740	1,109,274	26	18,375	10	4,600
65	37,166	1	900	1	1,000	23	12,123	24	13,097	1	1,000	1	600
1,193	787,725	13	13,140	12	11,760	380	246,497	388	256,067	3	2,400	1	1,000
327	350,956	9	7,562	2	1,300	172	119,273	187	119,095	1	780	1	1,000
706	394,337	23	19,105	4	3,384	186	101,394	205	117,218	1	840	1	1,000
275	143,023	5	3,648	3	1,942	57	27,020	102	53,351	1	1,000	1	1,000

* No company reported in 1902 for North Dakota, and the 1 company in South Dakota in 1902 failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 165.—EMPLOYEES, SALARIES, AND WAGES OF OPERATING COMPANIES,

STATE OR TERRITORY.	Cen- sus.	Num- ber of com- panies.	SALARIED EMPLOYEES.							
			Total.		Salaried officers of corporations.		Other officers, managers, superin- tendents, etc.		Clerks and book- keepers.	
			Number.	Salaries.	Number.	Salaries.	Number.	Salaries.	Number.	Salaries.
64 South Central division.....	1907	■	722	\$850,746	121	\$270,902	181	\$280,747	440	\$299,097
65	1902	66	335	418,651	117	233,856	80	79,838	180	104,935
66 Kentucky.....	1907	13	77	115,738	20	48,605	18	25,550	39	31,583
67	1902	12	50	73,259	25	44,532	11	11,099	23	17,328
68 Tennessee.....	1907	9	166	176,028	20	48,594	35	53,303	111	74,731
69	1902	8	40	64,572	16	32,075	11	18,054	22	14,743
70 Alabama.....	1907	10	97	134,185	23	51,161	18	28,705	58	44,318
71	1902	9	57	65,245	12	24,701	12	21,940	33	18,004
72 Mississippi.....	1907	8	46	44,045	11	12,685	10	14,193	25	17,167
73	1902	5	21	17,699	11	12,950	1	300	9	4,440
74 Louisiana.....	1907	11	75	94,979	11	51,778	7	10,614	57	32,587
75	1902	8	62	86,723	20	53,567	6	8,649	26	24,507
76 Arkansas.....	1907	8	58	57,424	6	7,775	15	28,160	37	21,499
77	1902	7	23	18,250	8	9,099	6	3,642	9	5,388
78 Oklahoma ¹	1907	8	34	31,400	9	10,657	7	5,111	18	10,940
79 Texas.....	1907	23	169	206,347	21	39,647	53	100,418	95	68,282
80	1902	17	66	92,603	25	56,023	13	16,154	28	19,826
81 Western division.....	1907	91	1,647	1,844,015	121	359,751	229	603,023	1,297	981,241
82	1902	66	632	690,721	112	238,206	94	153,072	270	198,843
83 Montana.....	1907	5	20	34,006	1	3,127	6	20,185	13	10,694
84	1902	5	14	20,825	5	11,150	1	1,000	8	8,078
85 Colorado.....	1907	11	133	183,991	29	72,228	24	49,049	80	62,714
86	1902	7	74	87,737	18	38,813	12	18,456	44	30,468
87 Washington.....	1907	14	302	416,898	30	63,881	64	152,950	278	200,037
88	1902	8	89	109,143	24	50,775	9	19,380	56	38,798
89 Oregon.....	1907	8	93	104,861	4	30,000	7	12,373	82	62,508
90	1902	6	35	44,207	10	20,733	8	10,965	17	12,509
91 California.....	1907	41	904	954,742	57	168,515	104	223,436	743	562,791
92	1902	34	265	309,622	48	103,628	61	99,811	146	106,383
93 All other Western states and territories ²	1907	12	135	169,527	10	22,000	24	45,030	101	82,497
94	1902	6	15	18,967	7	13,107	3	3,290	5	2,620
95 Hawaii and Porto Rico ³	1907	4	32	45,789	5	5,258	10	25,474	17	15,057
96	1902	5	22	25,179	9	8,959	2	5,800	11	10,420

¹ No company reported in 1902.² Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 3.

BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

WAGE-EARNERS													
Total.		Foremen.		Inspectors.		Conductors.		Motormen.		Starters.		Switchmen.	
Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
12,331 6,394	\$7,060,037 3,463,786	180 116	\$173,121 98,228	140 92	\$128,969 65,912	3,674 1,718	\$2,044,483 881,285	3,773 2,177	\$2,134,650 1,178,051	46 34	\$40,674 23,600	42 17	\$18,510 6,409
2,375 1,331	1,342,212 678,670	25 25	31,360 18,138	25 20	34,974 20,249	786 266	427,095 90,084	827 557	448,622 288,400	12 14	9,653 11,711	8 6	2,099 3,285
2,092 1,206	1,174,200 533,878	35 24	34,397 19,086	24 20	24,346 12,333	601 386	335,586 164,146	607 399	346,845 170,851	8 4	9,863 2,400	4 1	1,994 865
1,645 921	917,545 481,046	34 18	32,646 16,044	29 20	32,622 15,216	386 208	236,584 106,877	380 217	234,125 112,639	2 2	1,740 1,740	7 7	4,121 4,121
437 137	222,007 72,178	9 3	7,275 1,865	4 2	3,120 1,106	112 38	48,216 15,229	121 32	53,409 17,351	3 1	2,400 490	2 2	1,200 1,200
2,684 1,646	1,573,648 1,081,875	12 22	12,443 22,128	17 18	15,809 14,310	880 526	472,887 346,139	885 538	474,978 351,266	6 8	5,680 6,180	17 10	4,286 2,789
567 225	333,908 112,666	11 2	10,200 1,021	3 1	2,847 1,021	132 66	70,715 21,906	168 86	93,815 44,178	3 3	2,120 1,707	3 3	1,060 1,060
342	155,268	2	1,440	1	840	110	54,996	110	51,419	2	2,100	2	1,343
2,189 929	1,341,253 503,475	42 22	43,360 18,436	27 3	24,431 2,700	670 231	268,424 129,006	685 349	431,377 182,270	10 4	7,212 2,712	5 4	2,407 2,407
18,162 8,384	14,530,043 5,994,685	464 254	504,366 196,942	181 53	197,251 50,314	4,853 2,720	3,886,063 1,840,908	4,827 2,752	3,886,434 1,858,629	67 26	65,403 24,040	83 43	70,785 35,678
231 178	288,177 172,643	4 5	5,675 6,235	1 1	1,129 1,129	75 60	97,892 57,842	77 55	100,283 51,886	1 1	825 825	11 11	12,809 12,809
1,605 979	1,255,656 734,519	31 12	42,074 12,870	4 8	4,040 7,479	493 296	264,801 224,892	485 302	261,961 231,261	1 1	825 825	2 4	1,132 2,400
3,764 1,250	2,960,382 898,737	66 44	60,072 45,303	28 14	29,235 14,760	1,019 349	742,974 222,103	1,013 353	747,296 222,087	13 13	11,576 11,576	4 4	3,109 3,109
1,123 490	963,781 394,056	14 12	17,120 14,490	9 1	9,735 900	379 152	337,182 126,473	378 155	335,901 126,626	1 1	1,080 1,080	1 1	1,080 1,080
10,613 5,187	8,272,854 3,588,889	235 111	367,140 114,934	122 28	146,177 25,975	2,638 1,789	2,154,764 1,141,462	2,623 1,776	2,149,069 1,147,317	50 24	49,762 22,720	66 39	53,715 33,278
877 300	699,193 206,841	12 3	12,285 3,120	7 2	6,925 1,200	249 94	190,670 68,146	251 111	192,024 79,452	2 2	2,100 1,920	2 2	2,100 1,920
365 281	108,142 177,620	2 7	1,425 5,540	6 1	2,917 1,500	99 78	58,412 35,238	101 116	59,112 38,257	1 1	250 250	1 1	250 250

* Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

STREET AND ELECTRIC RAILWAYS.

TABLE 165. —EMPLOYEES, SALARIES, AND WAGES OF OPERATING COMPANIES,

STATE OR TERRITORY.	Census.	WAGE-EARNERS—continued.									
		Road and track men.		Linemen.		Electricians.		Car and motor repairers. ¹		Engineers.	
		Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
1 United States.....	1907	22,401	\$12,308,096	3,066	\$2,831,897	1,525	\$1,384,061	13,476	\$9,200,149	1,948	\$1,923,084
2	1902	11,474	5,511,425	2,288	1,553,478	1,150	901,524			1,751	1,527,793
3 North Atlantic division.....	1907	11,346	6,554,988	1,462	1,149,394	649	567,219	6,672	4,401,547	850	853,089
4	1902	6,179	3,016,711	1,189	781,025	722	573,168			806	697,338
5 Maine.....	1907	176	95,406	38	23,985	17	12,230	92	59,882	32	25,418
6	1902	156	68,704	25	14,533	46	33,528			32	23,602
7 New Hampshire.....	1907	49	50,921	9	8,184	2	1,107	30	22,499	9	8,154
8	1902	35	18,099	9	5,640	4	3,169			10	9,035
9 Vermont.....	1907	33	16,844	4	2,250	4	3,068	14	5,242	6	4,831
10	1902	19	8,974	3	1,088	1	800			4	2,849
11 Massachusetts.....	1907	1,908	1,116,210	327	247,663	31	45,757	900	677,277	196	190,881
12	1902	899	462,163	239	168,390	80	54,317			196	181,569
13 Rhode Island.....	1907	473	246,331	45	32,303	5	5,846	250	211,613	11	11,390
14	1902	211	118,439	26	20,078	15	11,077			16	16,271
15 Connecticut.....	1907	794	352,902	80	66,171	7	5,217	345	234,706	75	80,274
16	1902	325	145,569	98	61,342	18	13,144			57	51,621
17 New York.....	1907	4,921	2,010,535	505	498,415	451	418,891	3,127	1,944,636	225	239,049
18	1902	2,778	1,411,386	430	320,269	320	291,034			209	192,207
19 New Jersey.....	1907	496	229,422	105	85,037	10	9,187	772	516,309	57	54,240
20	1902	243	108,300	68	44,015	25	21,477			37	31,294
21 Pennsylvania.....	1907	2,476	1,535,957	299	187,406	72	65,846	1,092	726,163	249	238,663
22	1902	1,521	677,117	241	145,061	213	144,822			244	188,610
23 South Atlantic division.....	1907	1,279	559,219	209	203,371	76	65,979	918	589,103	181	164,570
24	1902	993	321,274	252	133,761	60	44,409			174	142,447
25 Delaware.....	1907	24	8,744	4	3,294	2	1,530	26	18,799	4	3,390
26	1902	17	5,575	5	3,325	1	912			8	7,740
27 Maryland and District of Columbia.....	1907	369	180,923	56	46,352	25	22,712	595	411,167	32	33,252
28	1902	330	133,624	64	26,287	29	19,653			42	35,956
29 Virginia.....	1907	225	90,975	94	55,265	21	16,743	13	7,490	40	38,161
30	1902	71	21,355	34	10,641	10	7,537			36	26,791
31 West Virginia.....	1907	274	132,562	29	20,230	3	3,060	49	30,830	34	28,018
32	1902	62	27,722	14	9,094	4	3,860			28	20,008
33 North Carolina.....	1907	65	22,307	33	19,806	13	10,800	23	10,793	23	17,353
34	1902	60	14,799	25	8,929	3	1,800			19	14,050
35 South Carolina.....	1907	78	20,685	19	10,835	4	3,705	27	12,698	11	10,201
36	1902	35	9,386	12	5,896	3	3,250			7	6,690
37 Georgia.....	1907	194	78,348	58	43,764	7	6,489	134	63,198	20	17,907
38	1902	284	100,512	92	42,475	9	6,906			23	20,785
39 Florida.....	1907	50	24,773	6	3,835	1	840	51	24,130	17	16,618
40	1902	34	8,301	16	11,174	1	551			11	9,857
41 North Central division.....	1907	6,534	3,466,239	1,180	902,349	526	434,779	3,584	2,457,577	644	616,593
42	1902	2,910	1,415,500	591	390,663	256	188,544			550	462,301
43 Ohio.....	1907	1,751	839,048	235	192,743	85	73,799	1,035	675,641	228	215,413
44	1902	928	407,765	193	132,583	79	55,225			188	146,168
45 Indiana.....	1907	563	268,296	151	96,692	94	61,706	286	237,844	84	70,260
46	1902	326	134,931	69	41,070	9	7,060			54	36,362
47 Illinois.....	1907	2,299	1,202,813	308	287,674	181	153,164	1,079	788,504	117	119,343
48	1902	603	346,333	97	71,274	67	47,711			104	92,442
49 Michigan.....	1907	532	361,038	118	93,650	30	35,731	425	280,067	66	67,798
50	1902	344	167,454	58	37,961	23	18,624			59	52,190
51 Wisconsin.....	1907	224	135,090	72	57,038	18	14,025	82	59,200	34	29,971
52	1902	77	39,465	48	29,515	14	9,767			31	25,293
53 Minnesota.....	1907	96	60,172	27	23,249	24	29,362	91	69,022	10	13,260
54	1902	63	40,340	17	11,514	17	10,812			13	13,145
55 Iowa.....	1907	265	121,935	59	40,948	24	19,488	79	52,765	51	42,361
56	1902	201	91,124	59	38,300	21	15,380			44	32,957
57 Missouri.....	1907	614	372,700	122	92,766	33	32,547	366	239,784	35	39,796
58	1902	301	150,606	42	22,242	19	14,715			59	51,119
59 North and South Dakota.....	1907	6	4,510	1	120			1	720	2	1,440
60 Nebraska.....	1907	81	30,583	16	11,503	5	5,040	44	37,132	4	4,080
61	1902	21	9,048	4	2,844	3	2,920			4	3,225
62 Kansas.....	1907	103	52,043	11	5,906	13	9,859	26	16,896	18	12,903
63	1902	46	19,434	4	2,340	4	3,780			12	9,400

¹ Not reported separately in 1902.

EMPLOYEES, SALARIES, AND WAGES.

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BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

WAGE-EARNERS—continued.												
Dynamo and switchboard men.		Firemen.		Other mechanics.		Hostlers, stablemen, etc.		Watchmen.		All other employees.		
Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	
1,963 1,167	\$1,433,304 761,304	3,282 2,604	\$2,309,819 1,735,647	11,264 9,197	\$8,034,588 6,312,119	1,132 1,345	\$732,795 813,425	1,454 921	\$789,181 497,103	23,418 16,475	\$14,008,971 8,693,237	1 2
783 477	612,000 309,755	1,468 1,366	1,090,003 912,123	6,503 5,154	4,617,217 3,499,392	731 686	481,010 500,444	840 562	435,529 308,943	10,792 9,013	6,715,748 4,630,983	3 4
16 3	10,291 1,200	38 29	25,623 15,900	16 29	9,262 19,993	6 30	4,736 19,009	22 13	14,681 7,536	157 59	97,010 32,439	5 6
		4 6	2,879 2,735	12 19	9,286 12,447	1 3	730 1,695	6 10	3,087 5,822	15 4	7,265 1,705	7 8
9	9,817	4 2	1,033 1,140	1 3	450 1,906	1 3	572 1,662	3 4	1,586 2,107	6 7	3,047 3,554	9 10
52 65	38,125 49,693	318 242	231,986 153,930	1,380 1,532	891,340 1,020,515	141 106	89,583 69,724	114 120	74,482 72,231	1,137 1,772	771,093 859,067	11 12
20 2	17,884 1,324	23 27	15,541 18,410	205 87	148,747 55,285	5 3	2,378 1,615	16 20	11,167 12,402	166 293	113,158 185,944	13 14
35 15	21,375 10,400	40 54	42,531 38,038	27 163	22,152 105,005	8 10	5,726 5,810	11 26	7,745 15,146	439 121	606,653 64,256	15 16
414 302	361,732 182,213	503 578	366,978 420,410	3,720 1,660	2,803,527 1,263,288	518 546	349,750 256,287	400 173	198,009 98,872	6,346 5,957	4,127,687 2,890,978	17 18
26 41	22,438 27,924	111 67	92,500 36,367	11 422	24,443 245,448	15 38	9,061 27,034	45 49	28,211 21,240	421 132	260,653 87,708	19 20
211 49	133,338 26,701	418 351	281,932 218,184	1,103 1,228	707,910 775,201	36 142	19,178 77,558	214 146	100,951 73,527	2,105 648	935,580 504,731	21 22
142 79	91,332 63,917	240 183	141,436 99,974	365 492	220,222 314,756	45 37	22,967 15,632	97 73	47,532 32,857	1,978 1,067	1,021,162 517,170	23 24
22	16,549	4 10	2,700 6,861	10	8,005	1	625	4 1	2,013 639	8 10	3,000 3,073	25 26
19 22	15,311 15,799	56 56	42,560 37,821	55 264	41,770 243,926	14 22	8,632 10,340	32 40	17,717 18,198	622 397	375,360 211,001	27 28
23 13	13,807 6,529	46 29	25,786 12,962	237 31	138,065 15,639	13 3	4,904 1,213	30 8	13,682 3,080	505 173	216,547 58,566	29 30
10 6	6,100 2,880	23 22	15,428 13,414	10 19	5,500 11,359	9 4	5,400 1,800	3 4	1,920 1,990	100 39	49,978 16,194	31 32
8 2	4,374 840	30 19	15,480 6,268	11 8	5,374 2,791	2 2	810 290	10 5	4,078 2,053	36 27	13,179 8,151	33 34
13 7	7,135 4,112	14 8	7,141 4,214	19 10	8,026 5,090	1 2	300 468	7 5	2,665 2,100	89 25	33,212 13,985	35 36
36 24	20,707 10,659	38 30	16,950 13,156	23 33	16,959 19,535	3 3	1,722 1,654	6 8	3,012 1,396	461 230	248,436 180,456	37 38
11 5	7,349 3,098	29 10	15,331 5,276	11 17	4,628 7,912	2 1	484 408	5 6	2,446 3,421	137 56	80,830 23,742	39 40
715 472	464,454 302,687	1,189 808	611,785 494,075	2,996 2,548	2,168,493 1,723,471	237 271	165,644 140,370	344 185	191,168 94,563	7,638 5,330	4,355,582 2,923,066	41 42
179 110	112,218 73,611	365 231	241,728 141,286	372 664	230,190 441,032	27 43	16,644 21,207	89 42	52,577 22,547	1,714 998	895,881 349,400	43 44
60 27	46,054 18,997	132 52	85,092 27,631	139 219	94,502 122,286	5 47	2,825 25,346	38 16	20,174 5,970	1,111 280	493,528 112,568	45 46
292 183	184,298 109,655	289 191	197,993 124,468	903 732	647,142 498,507	120 107	89,830 59,912	76 41	40,209 21,919	2,269 2,302	1,432,485 1,126,096	47 48
55 69	40,658 43,270	112 67	80,934 41,636	311 273	240,035 165,002	5 9	2,870 4,404	53 30	29,007 14,745	599 245	364,656 114,201	49 50
29 34	15,967 24,924	50 37	28,810 21,713	298 108	212,230 84,656	12 7	6,465 3,023	10 12	5,855 6,023	427 715	219,375 430,885	51 52
9 14	9,824 10,984	24 24	18,420 10,258	83 98	85,094 67,505	5 8	2,074 4,580	16 3	9,649 1,643	395 224	239,086 163,334	53 54
19 5	10,148 2,820	89 67	54,156 36,182	98 121	99,741 78,901	50 15	29,486 7,874	14 8	6,441 3,999	207 103	130,396 43,945	55 56
54 24	41,312 16,912	110 112	79,934 73,824	674 271	479,629 224,502	14 32	10,612 18,029	39 23	23,772 12,901	729 691	491,333 541,781	57 58
		1	450	2	1,500					3	1,706	59
6 1	4,640 900	11 17	14,730 11,190	110 52	84,840 34,220	4 1	2,100 600	4 5	2,040 2,604	104 48	51,623 34,477	60 61
3 1	315 720	17 10	9,038 5,832	8 10	5,600 6,080	5 2	2,637 575	3 5	1,424 2,452	80 14	25,608 6,399	62 63

* No company reported in 1902 for North Dakota and the 1 company in South Dakota in 1902 failed to furnish this information.

STREET AND ELECTRIC RAILWAYS.

TABLE 165.—EMPLOYEES, SALARIES, AND WAGES OF OPERATING COMPANIES,

STATE OR TERRITORY.	Census.	WAGE-EARNERS—continued.									
		Road and track men.		Linemen.		Electricians.		Car and motor repairers. ¹		Engineers.	
		Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
64 South Central division.....	1907	1,230	\$514,120	251	\$186,442	79	\$72,118	706	\$437,011	150	\$145,507
65	1902	624	249,410	124	84,961	26	19,865			105	94,304
66 Kentucky.....	1907	282	138,729	35	27,844	7	7,920	56	35,817	21	20,280
67	1902	165	78,309	26	18,392	13	7,732			20	16,041
68 Tennessee.....	1907	177	48,478	37	30,510	16	18,000	106	63,382	18	18,000
69	1902	141	47,232	22	12,214					15	12,573
70 Alabama.....	1907	209	81,515	42	34,364	10	7,466	113	80,556	18	18,222
71	1902	63	22,730	21	14,217	1	900			13	10,900
72 Mississippi.....	1907	39	15,119	25	15,811	9	7,630	30	17,471	22	19,985
73	1902	19	5,708	6	4,432	2	2,100			7	6,190
74 Louisiana.....	1907	214	100,908	34	27,171	3	4,200	217	139,896	21	23,436
75	1902	86	42,810	23	19,303	4	3,240			23	26,340
76 Arkansas.....	1907	57	23,053	21	12,006	16	13,524	36	22,796	11	11,654
77	1902	19	8,548	4	2,341					12	6,930
78 Oklahoma ¹	1907	35	12,585	6	2,924	3	1,848	11	6,616	2	1,218
79 Texas.....	1907	207	92,736	51	34,722	15	11,441	137	90,199	35	32,740
80	1902	131	55,077	22	13,832	8	5,903			16	14,270
81 Western division.....	1907	2,012	1,274,130	444	301,341	195	244,086	1,594	1,314,900	122	142,223
82	1902	768	697,530	182	154,088	84	77,449			117	131,408
83 Montana.....	1907	16	12,967	3	2,600	1	1,680	10	12,196		
84	1902	19	17,296	7	3,619	1	864			3	4,927
85 Colorado.....	1907	147	92,661	25	25,004	19	23,041	85	74,535	29	23,555
86	1902	130	72,128	40	35,143	6	6,439			21	24,024
87 Washington.....	1907	402	342,173	144	119,763	40	29,953	366	306,446	29	34,570
88	1902	121	86,362	68	58,865	20	19,270			26	26,886
89 Oregon.....	1907	112	71,746	26	18,665			128	118,323	1	840
90	1902	82	34,156	11	8,445	2	2,280			9	9,364
91 California.....	1907	1,263	706,110	221	199,805	126	109,637	880	707,344	58	67,814
92	1902	390	261,250	53	45,008	54	47,885			56	64,573
93 All other Western states and terri- 94 tories. ²	1907	72	48,453	25	25,424	9	10,785	109	100,064	6	6,754
95	1902	47	26,338	3	3,000	1	720			2	1,620
96 Hawaii and Porto Rico ⁴	1907	23	9,390	6	3,934	2	2,590	19	13,607	8	7,793
	1902	44	17,219	7	2,008	1	1,320			7	7,717

¹ Not reported separately in 1902.² No company reported in 1902.

EMPLOYEES, SALARIES, AND WAGES.

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BY STATES AND GEOGRAPHIC DIVISIONS: 1907 AND 1902—Continued.

WAGE-EARNERS—continued.											
Dynamo and switchboard men.		Firemen.		Other mechanics.		Hostlers, stablemen, etc.		Watchmen.		All other employees.	
Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.	Average number.	Wages.
79	\$58,074	248	\$151,506	192	\$134,196	35	\$16,467	58	\$29,427	1,446	\$775,631
50	31,216	136	71,582	388	270,299	60	29,999	59	32,000	606	319,896
26	18,931	55	22,655	22	16,403	1	468	3	1,750	155	86,583
2	1,120	■	17,069	98	67,544	11	6,022	14	10,285	33	16,091
5	4,020	34	18,261	25	14,990	4	2,382	8	3,273	283	199,723
5	1,095	19	6,968	67	33,227	8	2,291	12	4,200	85	35,078
10	8,891	30	18,968	67	45,473	6	3,213	22	11,157	253	95,562
9	4,790	16	8,210	56	39,886	13	7,840	6	2,190	239	119,531
3	1,480	26	14,980	5	2,988	2	1,092			25	9,756
2	913	10	5,633	5	3,148			1	639	19	7,835
13	11,080	25	17,507	10	6,770	6	2,284	14	9,136	350	245,298
31	21,016	25	16,780	97	79,523	12	7,020	18	10,934	206	112,107
8	5,009	18	10,133	17	14,125	6	8,773	5	2,178	53	23,803
2	1,682	16	6,233	14	12,069	6	2,310	1	480	6	2,464
		2	901	6	3,190	4	963	1	196	45	11,629
14	8,563	58	37,020	40	20,359	6	2,310	5	1,637	182	91,295
1	600	18	10,669	51	34,892	8	2,316	7	2,872	36	25,090
244	207,444	138	115,090	1,204	894,458	64	46,667	115	83,535	1,564	1,200,845
89	73,729	299	157,893	613	504,201	91	60,980	42	28,140	889	302,132
3	2,708	4	4,407	3	4,050	2	2,190	6	6,054	22	27,790
				8	9,932	4	3,452	1	1,148	8	8,337
12	11,143	37	31,353	143	114,278	1	720	17	10,488	74	68,995
10	9,968	37	30,737	37	28,001	2	1,620	2	1,104	72	45,863
71	59,516	56	43,708	118	105,819	11	4,893	15	10,476	377	289,803
25	20,560	49	35,880	73	63,744	5	3,780	4	2,580	99	78,528
2	1,440	16	11,420	43	36,874	1	600	13	11,418	52	47,192
								8	5,465	26	15,535
137	118,673	29	24,894	929	669,411	46	23,775	56	43,979	945	698,785
48	28,433	101	74,333	437	354,352	77	50,442	25	16,673	183	150,234
24	18,112	6	5,125	1	900	4	2,090	6	3,120	94	73,293
1	600	■	1,116	17	10,698	2	1,066	2	1,170	11	5,655
3	287	12	5,092	19	9,629	6	1,563	■	1,896	54	20,504
		5	2,995	27	17,133	47	14,111	5	1,210	35	12,622

* Includes states and territories as follows: 1907—Arizona, 4; Idaho, 2; Nevada, 1; New Mexico, 2; Utah, 3. 1902—Arizona, 1; Idaho, 1; New Mexico, 1; Utah, 2.

* Includes companies as follows: 1907—Hawaii, 1; Porto Rico, 3. 1902—Hawaii, 3; Porto Rico, 2.

CHAPTER IX.

SALE OF CURRENT BY ELECTRIC-RAILWAY COMPANIES.

There appears to be a tendency among electric-railway companies to control all electric plants along their lines of service. There are numerous instances in which such plants are controlled by railway companies through the ownership of a part of the stock or bond issue. In such cases, however, the statistics for the electric plants are entirely distinct from those for the railways, and are included not in the present report on street and electric railways, but in the report on central electric light and power stations. When, on the other hand, such plants, from which current is sold, are owned and operated directly by the electric-railway company, the statistics have been included in the street and electric-railway census, and are included in the present report. As it was obviously desirable that the statistics for these electric light and power plants owned and operated by electric-railway companies should also be included with those of the census report on central light and power stations, these statistics, as far as possible, have been segregated and presented separately. Of the operating railway companies reporting the ownership of light and power plants, 29 had systems of book-keeping which made possible the preparation of separate census data for the two branches of the business. Accordingly, the statistics for these light and power plants were assigned to the report on central electric light and power stations, except that the investments in such light plants, which amounted to \$17,316,051, are carried in the balance sheets of the railway companies.¹

There were 330 railway companies in 1907 and 251 in 1902 that reported the sale of electricity in large or small quantities to other electric companies or for general commercial purposes. The statistics for the sale of electricity by these companies, for the respective censuses, have been included in the report on street and electric railways, because it was impossible to segregate the capital, expenses, employees, etc., for the two branches of service. The importance and growth of this branch of the electric-railway industry are shown by the amounts and the increase of the annual income derived from it. The income from this source was \$7,703,574 in 1902 and \$20,093,302 in 1907, an increase of \$12,389,728, or 160.8 per cent.

¹ See also p. 116.

A further indication of the magnitude of the interests involved in this service is the amount, given in Table 125, as expended for wages, supplies, and expenses incident to the electric service. Although the expenditure for such purposes was returned as \$6,168,873 in 1907 and \$2,188,753 in 1902, neither amount represents the entire expense, because in most cases the expenses of the power plant and the expenses of other service incident to the sale of the current could not be separated.

The growth of electric railways since the census of 1902 has been accompanied by a large increase in the sale of electricity to other roads or to the general public for light, power, or other purposes. The establishment of electric departments by railways in the smaller cities and towns affords electric light and power service in places that could not support independent light plants, and in many cases is an additional source of revenue for the railways without a corresponding increase in expense, since commercial light and power service supplied from railway lines can often be arranged as an aid in equalizing the current load.

There were 177 railway companies in 1907 and 118 in 1902 that reported the sale of current in such large quantities and for use in such a variety of industries that it was deemed essential to secure some detailed statistics concerning this branch of the business, although it was not possible to make a complete segregation so as to combine the statistics with those in the special report on central electric light and power stations. The statistics that could be separated are summarized in this chapter.

Income.—Although the statistics given in the following table do not represent the entire income derived from the sale of electric current by railway companies, the items for which the income is shown separately indicate the various uses for which electricity is now being supplied.

Practically all of the machines devoted to the generation of current for sale by these companies were located in the power houses containing the equipment for the generation of current to be used in the operation of the railways. Of the 177 companies selling current in large quantities in 1907, 6 did not generate their own power but purchased their entire current supply from other companies.

TABLE 166.—*Electric light and power plants operated by electric railways—Income, by class of service: 1907 and 1902.*

CLASS OF SERVICE.	INCOME.		Per cent of increase.
	1907	1902	
Number of operating companies.....	177	111	50.0
Income:			
Aggregate.....	\$17,291,824	\$6,469,726	167.3
From electric service.....	16,570,353	6,271,815	164.3
Lighting.....	13,273,295	5,492,669	141.7
Commercial.....	11,018,338	4,074,484	170.4
Public.....	2,254,957	1,417,985	59.0
Arc lamps.....	1,953,874	1,267,384	54.2
Incandescent lamps.....	297,188	150,601	97.3
Other lamps (Nernst, vacuum, vapor, etc.).....	3,805	(1)	.....
Stationary-motor service.....	2,085,013	768,040	249.6
Electric-railway service (exclusive of company's own cars).....	330,500	6,630	4,885.1
Electric heating, cooking, welding, etc.....	2,168	77	2,689.6
Sale of current to other electric companies.....	212,375	(1)	.....
Charging automobiles.....	1,069	9	(1)
All other electric service.....	72,156	4,390	1,543.6
From sale of supplies and fixtures.....	240,704	(1)	.....
From all other sources.....	474,565	197,911	139.8
Estimated amount of income lost because of free service furnished municipality or other government.....	33,097	(1)	.....

1 Not reported.

2 Not reported separately.

3 Increased one hundred and eighteen fold.

From the large amount of income from "Lighting" it is evident that the railway companies are engaging extensively in this branch of the industry and are relying upon it for a substantial part of their income. The total income from lighting increased from \$5,492,669 in 1902 to \$13,273,295 in 1907, or 141.7 per cent. The commercial lighting consists principally in supplying current for incandescent lamps in private houses and places of business and for electric signs, while the public lighting consists in supplying current for arc, incandescent, or other lamps used in lighting buildings and streets for a municipality or other government.

Commercial lighting is by far the most important source of income, although the increase in the stationary-motor and other classes of service has tended to decrease its relative importance.

There was a decided development in the stationary-motor service, and the increase in the income from this source in 1907 as compared with 1902 amounted to \$1,916,973, or 249.6 per cent. The reported income does not include the income from small fan motors, which are usually supplied with current through the meters employed to measure the lighting service. The increase in the income from the sale of current to other railway companies indicates the development of the tendency, especially in cities and suburban centers, for roads having no power houses, or generating insufficient power, to purchase current. The amounts received from "all other sources" represent principally rents, steam and hot-water heating, and labor and material for wiring.

It should be noted that the railway companies furnish considerable current to municipal and other governments free of charge, but it was impossible to ob-

tain a complete report of such service from all companies. It was estimated that the income lost during 1907 on account of this free service amounted to \$33,697.

For further information concerning the utilization of electric current, reference should be made to the special report on Central Electric Light and Power Stations, where the statistics for the sale of current for all commercial purposes are presented.

Description of service.—The number of lamps, motors, and meters wired for service by the companies for which the income is shown in Table 166 are given in the following table:

TABLE 167.—*Electric light and power plants operated by electric railways—Service equipment: 1907 and 1902.*

CHARACTER OF SERVICE.	EQUIPMENT.		Per cent of increase.
	1907	1902	
Number of operating companies.....	177	118	50.0
Arc lighting—number of lamps in service:			
Aggregate.....	80,102	33,863	136.5
Commercial.....	50,674	16,185	213.1
Open.....	4,401	2,582	73.9
Inclosed.....	46,183	13,603	239.5
Public.....	29,428	17,678	66.5
Open.....	4,644	10,868	157.3
Inclosed.....	24,784	6,810	263.9
Direct current.....	22,619	20,429	10.7
Commercial.....	11,805	8,972	34.1
Open.....	882	2,413	163.4
Inclosed.....	11,013	6,559	70.5
Public.....	10,724	11,567	17.3
Open.....	4,504	10,685	157.1
Inclosed.....	6,220	1,072	480.2
Alternating current.....	57,483	13,424	328.2
Commercial.....	38,779	7,313	429.8
Open.....	3,009	169	2,035.5
Inclosed.....	35,170	7,144	392.3
Public.....	18,704	6,111	206.1
Open.....	140	373	142.5
Inclosed.....	18,564	5,738	223.5
Incandescent lighting—number of lamps in service:			
Aggregate.....	4,545,830	1,442,685	215.1
Commercial.....	4,467,681	1,423,659	215.2
Public.....	58,158	19,026	205.7
Sixteen candlepower.....	3,931,237	1,326,398	195.6
Commercial.....	3,871,786	1,313,303	194.8
Public.....	48,451	13,065	270.8
Thirty-two candlepower.....	319,492	32,716	570.9
Commercial.....	217,228	31,507	587.5
Public.....	2,264	1,119	102.3
All other candlepower.....	406,110	83,001	385.8
Commercial.....	398,667	78,759	406.2
Public.....	7,443	4,842	53.7
Other electric lighting: Nernst, vacuum, vapor, etc.—number of lamps in service:			
Total.....	28,641	(1)	.....
Commercial.....	28,267	(1)	.....
Public.....	374	(1)	.....
Stationary motors:			
Number.....	20,468	10,049	103.7
Horsepower.....	158,923	35,688	345.3
Meters on consumption circuits, number.....	213,886	56,001	277.9

1 Decreased.

2 Not reported.

The increase in lighting service, measured by number of lamps, was largest in the use of incandescents, which show an increase of 215.1 per cent, as compared with a gain of 136.5 per cent in the arc service; furthermore, the growth of commercial service is much greater than that of public service. The distribution of the incandescent lamps reported has remained constant—that is, 98.7 per cent of them were for commercial service and 1.3 per cent for public service in both 1902 and 1907; on the other hand, the arc lamps in public service constituted 52.2 per cent of the total number of arc lamps reported

in 1902 but only 36.7 per cent in 1907, and the commercial arc lamps increased from 47.8 per cent of the total number in 1902 to 63.3 per cent in 1907.

Although the number of arc lamps increased from 33,863 in 1902 to 80,102 in 1907, or 136.5 per cent, this gain was wholly in inclosed arcs, which increased from 20,413 to 70,967, or 247.7 per cent, while the open arcs in use decreased from 13,450 to 9,135, or 32.1 per cent. The loss in number of open arcs was entirely in the arcs in public service. The number in commercial service increased from 2,582 to 4,491, or 73.9 per cent, while the number in public service decreased from 10,868 to 4,644, or 57.3 per cent. The inclosed arcs formed 88.6 per cent of the total number of arcs in use in 1907, as compared with 60.3 per cent for 1902.

The statistics in regard to stationary-motor service show that the average horsepower capacity per motor

in 1907 was more than twice that for 1902, the averages being 7.76 for 1907 and 3.55 for 1902.

In addition to the lamps from which the railway companies received an income, practically all companies reported the use of lamps in lighting their own properties—offices, power houses, shops, car houses, and pleasure resorts. In 1907 there were 141,998 incandescent lamps, 2,606 arc lamps, and 581 lamps of other varieties used for this purpose by the railway companies having light and power departments, as compared with 25,120 incandescent lamps and 743 arc lamps in 1902. All these lamps received current from the railway power plants.

Income and description of service, by states and territories.—Tables 168 and 169, which follow, are detailed summaries, by states and territories, of the income and equipment of electric light and power plants operated by electric railways for 1907.

TABLE 168.—ELECTRIC LIGHT AND POWER PLANTS OPERATED BY ELECTRIC RAILWAYS—INCOME BY CLASS OF SERVICE, BY STATES AND TERRITORIES: 1907.

INCOME BY CLASS OF SERVICE.																	
STATE OR TERRITORY.	Number of operating companies.	Aggregate.	Commercial lighting.	Public lighting (furnished municipality or other government for buildings and streets).				Stationary-motor service.	Electric railway service (exclusive of company's own cars).	Electric heating, cooking, welding, etc.	Sale of current to other electric companies.	Charging automobiles.	All other electric service.	Sale of supplies and fixtures.	All other sources.	Estimated amount of income lost because of free service furnished municipality or other government.	
				Total.	Arc lamps.	Incandescent lamps.	Other lamps (Nernst, vacuum, vapor, etc.).										
United States		177	\$17,291,824	\$11,018,338	\$2,254,957	\$1,953,674	\$297,188	\$3,895	\$2,685,013	\$330,509	\$2,148	\$212,375	\$1,069	\$72,156	\$240,704	\$474,565	\$33,697
Alabama	5	671,425	528,840	57,780	57,140	640			84,796								200
Arkansas	3	383,631	319,103	21,419	14,798	6,621			39,529					3,172		406	
Florida	5	340,022	290,067	30,309	29,725	5,675			49,427					57	2,996	1,435	1,195
Georgia	7	1,438,822	965,998	203,746	182,902	20,844			284,938	15,510		2,510		12,264	6,021	7,835	1,000
Illinois	12	943,859	594,309	90,990	87,919	2,071	1,000		105,064	37,589		49		75	5,126	109,096	1,400
Indiana	7	331,342	211,081	59,429	58,682	747			43,710						4,002	11,440	23
Iowa	11	504,884	321,663	102,745	102,745	2,493	60		103,091	6,000	1,000	1,800	240	867	34,002	29,806	2,909
Kansas	3	146,049	55,642	49,308	24,683	24,625			27,074					30	29,618		1,800
Maine	3	188,456	137,535	18,102	13,288	4,814			29,618	1,800		162			1,011	298	52
Michigan	7	345,813	198,807	57,522	49,579	7,943			30,778	34,445					23,911	134	
Mississippi	6	317,855	228,481	63,872	59,828	1,581	2,463		15,400					309	8,901	901	
Missouri	4	274,929	179,030	16,085	14,885	1,200			45,852						347	33,625	
New York	11	621,856	292,623	239,750	114,763	124,987			74,058	5,671				561	519	8,654	300
North Carolina	8	491,061	325,224	64,408	61,690	2,718			81,282	2,694				43	13,907	3,693	
Ohio	20	1,507,195	891,309	293,346	278,129	14,845	372		210,712	13,409	100	52,170	613		30,680	104,947	3,470
Pennsylvania	7	104,703	75,614	17,832	15,637	2,195			9,422				10		1,825		400
South Carolina	3	438,911	221,289	51,004	45,037	5,967			164,156							1,428	
Tennessee	3	700,100	510,304	24,500	24,500				146,798						18,698		
Texas	4	484,840	300,420	30,850	18,431	12,219			93,058								
Virginia	10	1,444,593	966,696	165,786	154,875	10,911			172,207	129,165				10,575	1,637	8,637	
Washington	6	1,295,428	866,494	31,903	25,083	6,210			221,085	15,519			30		40,544	119,833	862
West Virginia	7	326,752	213,817	69,106	62,496	6,610			9,102	14,189				17,220		3,318	2,127
Wisconsin	7	1,024,021	565,687	200,352	199,727	625			194,135		250		51	1,840	42,122	20,194	3,175
All other states and territories ¹	16	2,694,017	1,706,646	286,690	258,716	29,944			448,121	54,518	150	155,806		5,706	16,987	9,335	14,083

¹ Includes states and territories as follows: California, 1; Colorado, 2; Connecticut, 1; Kentucky, 2; Louisiana, 2; Maryland, 1; Massachusetts, 1; Minnesota, 1; Montana, 1; Nebraska, 1; New Hampshire, 1; New Mexico, 1; and Utah, 1.

STREET AND ELECTRIC RAILWAYS.

TABLE 169. ELECTRIC LIGHT AND POWER PLANTS OPERATED BY

ARC LIGHTING—NUMBER OF LAMPS IN SERVICE.														
STATE OR TERRITORY.	Number of operating companies.	Aggregate.	Total.				Direct current.				Alternating current.			
			Commercial.		Public.		Commercial.		Public.		Commercial.		Public.	
			Open.	Inclosed.	Open.	Inclosed.	Open.	Inclosed.	Open.	Inclosed.	Open.	Inclosed.	Open.	Inclosed.
United States.....	177	80,102	4,491	46,183	4,644	24,784	882	11,013	4,591	6,220	3,009	35,170	140	18,564
1 Alabama.....	5	2,633		1,759		874		1,015				744		874
2 Arkansas.....	5	1,527		1,308		129		350				1,016		150
3 Florida.....	5	745	109	287		349	109					287		349
4 Georgia.....	7	6,172	164	3,308	727	1,973	161	1,655	707	299	3	1,653	20	1,734
5 Illinois.....	12	4,069	103	2,447	278	1,271		1,141	278	640	103	1,308		631
6 Indiana.....	7	2,133		1,196	74	963			74	601		1,196		202
7 Iowa.....	11	2,886	38	1,219	234	1,325	30	140	234	51	8	1,079		1,344
8 Kansas.....	3	483	39	33	93	268	39	5	93			48		208
9 Maine.....	3	654		454	104	101		101	104	32		353		48
10 Michigan.....	7	1,308		590	99	629			99			590		629
11 Mississippi.....	6	869		254		645						254		645
12 Missouri.....	4	1,070		800		199						800		199
13 New York.....	11	2,596	730	300	163	1,338		31	163	400	759	275		938
14 North Carolina.....	8	1,821		817	194	790			194			837		790
15 Ohio.....	20	7,152		2,650	359	4,134		1,296	249	2,535		1,361	110	1,579
16 Pennsylvania.....	7	619		338	14	267		12	14			326		267
17 South Carolina.....	3	1,114		432		682				275		432		607
18 Tennessee.....	3	3,914	2,765	809		340	62				2,703	809		340
19 Texas.....	4	549	7	289		234		12			7	287		234
20 Virginia.....	10	5,956	42	3,405	493	2,126	42	1,913	493	270		1,392		1,856
21 Washington.....	6	3,340		2,932		408		1,474				1,458		408
22 West Virginia.....	7	1,279		325		934				34		325		900
23 Wisconsin.....	7	5,391	420	1,773	1,368	1,850	420	1,057	1,348	15		716		1,845
24 All other states and territories.....	16	21,908	45	18,343	494	2,036	19	800	474	1,028	26	17,534	10	1,908

¹ Includes states and territories as follows: California, 1; Colorado, 2; Connecticut, 1; Kentucky, 2; Louisiana, 2; Maryland, 1; Massachusetts, 1; Minnesota, 1; Montana, 1; Nebraska, 1; New Hampshire, 1; New Mexico, 1; and Utah, 1.

ELECTRIC RAILWAYS—SERVICE EQUIPMENT, BY STATES AND TERRITORIES: 1907.

INCANDESCENT LIGHTING—NUMBER OF LAMPS IN SERVICE.									OTHER ELECTRIC LIGHTING (KEROSENE, VACUUM, VAPORE, ETC.)—NUMBER OF LAMPS IN SERVICE.			STATIONARY MOTORS.		Number of meters on con- sumption circuits.
Aggregate.	Total.		16 candlepower.		32 candlepower.		All other candle- power.		Total.	Com- mercial.	Public.	Number.	Horse- power.	
	Com- mercial.	Public.	Com- mercial.	Public.	Com- mercial.	Public.	Com- mercial.	Public.						
4,545,839	4,487,681	58,158	3,871,780	48,451	217,228	2,264	308,667	7,443	28,641	28,267	374	20,465	158,923	213,886
151,108	151,003	105	150,646	105	355							999	4,923	9,331
88,467	88,404	403	78,219		1,362	131	8,823	362	1	1		898	2,420	9,305
83,066	81,780	1,276	81,165	1,235	250		375	41	71	71		880	2,624	5,804
322,843	320,761	2,082	313,261	1,626	7,500			546	167	167		1,853	14,377	12,572
270,367	270,193	174	238,140	100	7,837	54	24,216	20	391	114	277	1,690	5,902	10,862
91,304	91,178	126	72,989	106	4,473		13,716	20	80	80		473	2,123	4,842
150,660	150,280	404	114,562	245	6,620	130	29,077		2,838	2,832	6	947	5,408	7,356
26,000	26,000	7,000	5,300	6,500	22,300	130	1,500	350	65	65		164	1,491	1,787
82,363	82,008	327	60,074	238	7,854	75	13,308	14				283	2,779	2,353
103,462	100,902	2,560	92,740	2,371	2,550	85	5,612	104	202	202		527	3,377	5,360
66,240	65,620	620	56,920	405	5,000	215	1,700		204	148	56	151	1,065	4,160
88,930	88,820	110	65,999	60	22,578		243	50	22	22		392	2,621	3,966
134,363	124,273	10,090	119,697	5,061	1,451	21	3,125	5,018				482	5,446	5,434
126,131	124,681	1,450	102,862	1,450	3,697		18,102		380	380		556	5,043	6,562
322,022	316,409	5,553	288,092	5,198	32,705	150	97,072	205	1,335	1,300	35	2,275	17,613	19,211
31,331	31,057	274	26,068	150	564	116	4,505	8	169	169		70	451	1,231
115,767	110,370	5,397	101,370	5,391	6,000	6	3,000		31	31		339	7,508	3,629
191,491	191,491		177,439		3,759		10,290					801	10,083	9,288
82,656	80,911	1,845	80,811	1,845					9,231	9,251		275	3,349	5,729
373,928	372,713	1,215	284,321	849	7,000	230	81,362	136	22	22		864	15,416	15,553
298,672	292,068	1,604	276,518	1,564	1,635	40	13,915		566	566		1,614	12,061	22,181
88,967	78,571	10,396	64,602	10,005	4,459	291	5,450		187	187		153	857	4,171
282,724	282,278	446	281,278	396		50	1,000		11,106	11,106		1,914	13,121	12,708
667,514	662,908	4,611	533,281	3,651	67,249	391	62,373	599	1,551	1,551		2,349	18,625	33,871

STREET AND ELECTRIC RAILWAYS

PART II

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STREET AND ELECTRIC RAILWAYS.

PART II.—TECHNICAL.

By THOMAS COMMERFORD MARTIN, Expert Special Agent.

CHAPTER I.

EQUIPMENT.

I.

POWER-PLANT EQUIPMENT.

Power-plant engineering.—The general statistics of the industry for 1907 show the 945 operating companies enumerated to have 829 power houses, equipped with 2,552 steam and gas engines, inclusive of steam turbines, with a total capacity of 2,384,518 horsepower. In addition, there were 228 water wheels or hydraulic turbines, with a capacity of 91,961 horsepower, making a total of 2,476,479 horsepower in 2,780 units, an average of 891 horsepower per unit. A considerable gain in average size of unit over the figures of the last report is shown, while the individual units have also become much larger.

The general conditions that were noted as applying to power-house construction in 1902 have been in no wise changed in the intervening period, and the statements that then applied are equally true with respect to the data embodied in the present report. While in some instances the pressure has been raised in order to meet the conditions of longer lines and larger networks, the standard voltages have remained practically the same throughout the period. One noteworthy feature in this respect has been the gradual transition from direct current in the generating plants feeding into the system without manipulation, to alternating current feeding to intermediate substations where rotary converters or motor-generator sets are installed for delivering direct current to sections of the line. The usual method in electric-railway work is, transmission at about 13,000 volts alternating current and utilization at about 600 volts direct current; and the subsidiary apparatus, lightning protectors, etc., are adjusted to such conditions. The general principles of construction of alternating-power plants do not differ from those in plants for the direct current, except in the size of the units, which have been carried to proportions not attempted with earlier types when

direct current was the sole dependence. The water-tube boiler is the usual type chosen for such large plants, because it can be made in larger sizes without fear of explosion and occupies less ground space per horsepower than the fire-tube boiler. In the modern plants the size of the units is such that a two-story boiler room is common. Until a few years ago the chief prime mover for driving generators of larger size in railway plants was the compound condensing steam engine, the triple-expansion engine not finding much favor. In one instance during the period covered by the report a duplex compound engine was installed with two low-pressure cylinders horizontal and two low-pressure cylinders vertical. This was a generating unit of 5,000 kilowatt capacity. The next step was the introduction of the present turbine. With compound condensing engines the steam pressure commonly used has been 175 pounds, while with steam turbines the pressure has easily been carried to 200 pounds. Owing to the large size to which the alternating-current units have been developed, there has been a marked tendency toward the division of installations into units, each unit consisting of a generating engine and the condenser, together with the necessary number of boilers to furnish steam for the individual engines, and the auxiliaries connected with the boiler rooms. As the idea is that each unit shall be entirely independent of every other, there are several separate but interrelated power plants under the one roof. There is thus obtained a minimum of danger of a complete shut down, but if the unit is carried out rigorously into all the details, such conditions are less economical, as there is necessarily a greater amount of reserve apparatus. For the alternating current, generators that employ a periodicity of 25 cycles per second have been commonly adopted in the United States. The large modern machines are usually of the revolving-field type. The revolving parts carry low-voltage current, the high voltage to line being confined to the stationary

parts where there is little risk of accidental contact on the part of station attendants. Operation in parallel, so that all these generators feed at once into the same system, is attended with no difficulty.

Concentration in large plants.—Throughout the whole period covered by this report the tendency has been toward the abolition of smaller stations and the concentration of the generating apparatus in one very large building. While this involves a greater use of substations, it is economical, owing to a larger basis of production of electrical energy. The main plant is almost invariably located on the outskirts of the city served, on a site which is convenient for the securing of materials, coal, condensing water, and other supplies. Moreover, better supervision of the plant is obtained, and, in general, a much finer type of building is possible.

Power plant of the Interborough Rapid Transit Company.—A station in which the installation, as well as the building, is in many respects typical is the power house of the Interborough Rapid Transit Company in New York, situated on the Hudson River at West Fifty-ninth street, and put into operation in 1904. This is believed to be the largest electric-railway power plant in the world. It provides for a single row of large engines and electric generators contained within an operating room placed beside the boiler house, with the capacity to produce approximately not less than 100,000 horsepower when the machinery is operated at the normal rating. This plant was primarily designed for and equipped with reciprocating engines, but barely had it gone into operation before the transition was made to steam turbines. As originally designed and constructed the plant consisted of five generating sections or independent units, each similar to the other in all details, and comprising in each section 12 boilers; 2 engines, each direct-connected to 5,000 kilowatt alternators; 2 condensing equipments; 2 boiler-feeding pumps; 2 smoke-flue systems; and detail apparatus necessary to make each section a unit independent and complete in itself. The steam-engine and steam-pump equipment embraced 9 main engines, each of a capacity of from 8,000 to 11,000 horsepower direct-connected to the 5,000 kilowatt generators, and 3 steam turbines direct-connected to generators of 1,875 kilowatt capacity each for lighting, and two 400-horsepower engines direct-connected to 250 kilowatt generators for furnishing direct exciting current to the fields of the alternators. Each of the large engines at Fifty-ninth street consists of two compound condensing engines, weighing 720 tons, one at each end of the crank shaft, the alternators being placed at the center of the shaft between the engines. The 44-inch high-pressure cylinder is placed horizontally, and the 88-inch low-pressure cylinder vertically. The two connecting rods of each engine are associated with a common

crank pin; the two cranks are set at an angle of 135° to each other, giving 8 impulses to the shaft at equal intervals in each revolution; the stroke is 60 inches. The steam pressure is 175 pounds, and the steam consumption on the basis of the development of 8,000 horsepower is about 13 pounds per horsepower per hour.

It may be noted that the building housing this huge plant is 690 feet in length and 200 feet in width, the boiler room taking 83 feet of this width and the engine section 117 feet. The operating-room section is symmetrical in its construction, consisting of a central area with galleries at both sides, the northern gallery carrying the electric-control apparatus, etc., while the southern opens on the boiler room and is occupied chiefly with steam-pipe equipment. The outward facework of this structure is French renaissance in style, in cut granite and light-colored buff pressed brick, finished with buff terra cotta at the windows, cornices, parapets, etc. The interior of the operating room is in light cream pressed brick, with enameled brick wainscoting.

The complete 12-unit power house has 6 chimneys, spaced 108 feet apart on the longitudinal center of the boiler room, each chimney rising 220 feet above the grate bars, with an inside diameter of 15 feet at the top. The chimneys are supported upon the steel structure of the building, at an elevation of 76 feet above the basement floor and 63 feet above the grates, with 162 feet in total height of brickwork above the top of the supporting platform. Coal is delivered direct to the plant from barges on the Hudson River, the pier constructed at Fifty-eighth street inclosing the pipes through which the condensing water is taken from and returned to the river. The coal-handling equipment comprises a moving electric hoist with crushing and weighing apparatus combined with belt conveyors for the manipulation of the coal after its delivery and preparation.

Change to steam turbines.—As noted above, the change has already been made in this great plant from reciprocating engines to steam turbines, of which there are 3 of 1,250 horsepower and 1 of 5,500 horsepower. The new development in dynamo and steam-power mechanism generally designated as "turbo-generators" was described in some detail in the census report on electrical machinery, apparatus, and supplies.¹ It was there noted that the two types are horizontal and vertical, and that the leading horizontal type made in the United States follows rather closely the older method of construction. The adoption of both the horizontal and the vertical types has been general throughout the field in the past five years, and the results are summarized in the report of the Committee on Power Generation made to the American Street and

¹ Bulletin 73, "Electrical Machinery, Apparatus, and Supplies," Census of Manufactures, 1905.

Interurban Railway Engineering Association for the year 1907-8. This report embodies observations continuing in some cases over four years, the average being two years and eight months; the replies were made by systems having experience with direct-connected and belt-driven turbo units ranging from 200 kilowatts up to 2,700 kilowatts, and with steam turbines from 75 horsepower to 5,000 horsepower. It is stated to be shown conclusively that the cost of repairs, maintenance, and labor in operation is favorable to the turbine plant. The advantage in economy of labor cost of operation of the turbine over the reciprocating engine is hardly apparent in plants of less than 1,000 horsepower, but in larger plants it seems to be an important factor. In one plant of good size, where both reciprocating engines and turbines were of the same size, the labor cost of operation was given as 0.059 of a cent per kilowatt hour for turbines, and 0.108 of a cent for engines; and the cost of repairs and maintenance per kilowatt hour as 0.0303 of a cent for turbines and 0.0407 of a cent for engines. The report of the committee states that differences in fuel consumption per kilowatt hour under like conditions of load did not show that the turbine possessed such a decided advantage. The answers to questions on this point were more nearly equally divided, but the evidence generally seemed favorable to the turbine. The reliability of a prime mover in electrical operation is one of the vital and essential elements in its service. Such units often have to endure extreme variations in load, and at occasional intervals are under adverse pressure conditions. Replies from 20 out of 27 lines indicated that, on the ground of reliability, they considered the turbine equal or preferable to the reciprocating engine, while 5 lines preferred the reciprocating engine on this ground. For operation under varying steam pressure the replies were not so favorable to the turbine, 5 of the answers being favorable to the reciprocating engine. It is noted that at one time there was a feeling of anxiety in some quarters that the erosion of turbine blades and buckets by the steam might be so material a factor in a high maintenance cost as to affect the economy in their use, but now there seems to be little cause for uneasiness on this point, since those who have had turbines in use the longest report no erosion. It seems necessary, however, to provide proper means for separating entrained moisture from the steam in all cases.

Even though the turbine is a much simpler and possibly more reliable unit than the reciprocating type, the high vacuum and superheat essential to its most economical operation necessarily add more complicated and less reliable equipment to both boiler and engine room. It is probably on account of this essential auxiliary equipment that a great many replies from users of the turbine were not more favorable to the turbine.

Steam-driven equipment is preferred under nearly all circumstances, and especially where the exhaust is

needed to heat the feed water. In a few replies, engineers preferred electrically driven exciter units and circulating pumps. The condensers preferred by companies replying were necessarily of various types, as local conditions and the quality and quantity of water available governed their choice. The vacuum obtained by railway companies operating turbines varies from 26 inches to 29½ inches, one company reporting as high as 29 inches, and another 29½ inches. From 31 replies only 9 companies reported that they did not superheat steam.

The questions, "Do you consider it equally necessary for turbine and reciprocating engines to be heated up before starting?" and "Which has the advantage of time?" were asked. It was one of the earlier claims that a turbine, on account of its simplicity, could be started more quickly than the reciprocating engine, but replies to the above question do not prove this, as practically all users of turbines reporting regard it equally necessary to heat the turbine, and a few report favorably to the engine on account of the complicated auxiliary equipment of the turbine.

Replies to the questions, "Do you inspect your turbines systematically by opening?" and "To what extent and at what intervals?" were, with but three exceptions, that they are inspected systematically, but as to the extent of the inspection there is a variety of practice. Some inspect externally once each day, while some companies inspect thoroughly, externally and internally, once every three or four months; the internal inspection being for the purpose of examining blade clearance and removing any scale formation.

The replies on the question of overload indicate a wide range of practice, it being common to take full advantage of the overload possibilities of the units for peak loads as being more economical than starting additional units.

Double-decked plants.—An interesting development in connection with the use of steam turbines in electric-railway work is the double-decked generator station of which some examples fall within the census period. This type of station possesses certain advantages where the building area is restricted, as in a city, on a harbor frontage, or against a hillside. The ground area in the West Point station, at West Point, Ohio, of the Youngstown and Ohio River Railroad Company (under construction during 1907), is 2 square feet per kilowatt, although in another plant at Fort Wayne, of similar character, the plant covers only 1.42 square feet per kilowatt. The West Point station was designed to supply electrical energy to a network of interurban railways through alternating-current substations. The site selected is at the foot of a hill where, for condensing purposes, use can be made of impounded water from two passing streams. The various features embodied in this plant, where barometric condensers are used and where coal-handling machinery has been avoided as unnecessary, are enumerated as follows:

The generating machinery is on the second floor of the station, 33 feet above the boiler room on the ground floor; the weight of the generating apparatus is supported entirely by the steel-building skeleton, all the footings being carried down to the same stratum—rock; the box columns are 27 feet high; the floor structure is continuous, being tied in from wall to wall, thus reinforcing the entire structure; water-cooled floor columns pass through the middle of the boiler setting to reduce the weight and cost of the beams spanning the battery; and all other columns straddle the boiler setting. The barometric condensers are hung from the floor girders directly under the turbine exhaust nozzle, and as they are designed for moderate vacuum there are no air pumps; the steam piping is simple and direct, with few bends, and drains back from the turbine throttle; all important steam-header and supply lines are controlled by pedestal-extension valves from the turbine floor and nonreturn valves are placed in the delivery pipe from each boiler, to prevent back flow; the header serves largely as an equalizer, hence it is small in size (8 inches). The equipment has been designed for 200-pound pressure and high steam velocities; all auxiliaries are steam driven, so that steam may be had for feed-water heating, and the feed water is taken from the condenser hot well; the circulating pumps are interconnected for relay working and are primed by steam siphons or by the service pump; the pump suction pipes are submerged 8 feet in the intake bay to avoid surface air. There is a two-story side addition for accommodating the transformers; the alternating switchboard is located in the division wall, leaving a clear rectangular operating room and a separate switch room; the generators are air-cooled by positive blast piped from the outside in order to reach cooler air and to avoid the possibility of steam from the boiler room reaching the insulation; the turbine bedplate is leveled on the plate girders throughout its length with a cast-lead pad 1 inch thick; there is a reserve exciter unit, steam driven, the exhaust steam being taken to the heater; the transformers are mounted on trucks to facilitate replacement by a reserve unit which is provided; an ash hoist is installed from the level of the ash tunnel to the level of the sliding track; the crane reaches the basement through a removable section of the flooring; the flue connections pass directly to the stack, with no bends; the steel stack is self-supporting and brick lined; and there is an elevated tank in the turbine room to provide a head for the gland water and building service.

Low-pressure steam turbines.—Reference has been made above to the low-pressure turbo-generator unit in the power house of the Interborough Rapid Transit Company. This exemplifies a further departure in generating practice, but is not unique, as some interesting examples already exist in the traction power-house field. The 5,500-horsepower low-pressure turbine last

installed takes the exhaust of one of the present 5,000-horsepower reciprocating compound engines, and thus makes a triple-expansion combination which had hitherto been an unfamiliar element in street-railway engineering. The turbine is directly coupled with an induction generator rated at 5,000 kilowatts, 3-phase, 25 cycles, and is connected without switching apparatus to the leads of the reciprocating-engine generators. This low-pressure turbine has no governor, but is controlled by the generator, which latter is controlled by the governors on the reciprocating engine. This turbine is of the vertical-shaft, 3-stage type; the design of operation includes the separation of oil from the steam before it enters the turbine, so that the condensing steam, already used three times, can be used over again in the boilers, thus effecting a large saving in the quantity of water used. It is stated that double the output in electrical energy is obtained from the combined unit over that obtained formerly from the reciprocating engine alone, at a greatly reduced steam consumption per kilowatt.

Boston Elevated gas-engine plants.—Among the developments in power generation has been the use of gas engines, although these have not yet been carried into such large units in railway power plants as in the department of electric light and power in central-station practice. The Boston Elevated Railway Company has had for some time two gas-engine plants, both of them generating direct current and feeding into the overhead system of supply in multiple with steam-driven power stations. These have been operated most of the time in two eight-hour watches, from 7 a. m. until 11 p. m., and shut down the other eight hours. These plants are of considerable capacity. The Somerville power station has one pair of gas producers with the usual auxiliaries, two 600-brake horsepower gas engines, each 2-cylinder, 4-cycle, and two 350-kilowatt direct-current generators. The fuel for the producer is soft coal, the same as that used in the regular central stations, mostly run-of-mine Pocahontas. The figures from January to August, 1907, show an average consumption of 1.404 pounds of coal per brake horsepower hour, and 2.034 pounds per kilowatt hour, as compared with 3.447 pounds of coal per kilowatt hour for all the Boston Elevated steam plants. The station load factor, based on sixteen hours per day and seven days per week, is 41.6 per cent; the engine load factor, 83.2 per cent; and the generating load factor, 98.4 per cent. This plant started in May, 1906.

General gas-engine practice.—An interesting variation in gas-engine practice is found in the Warren and Jamestown Street Railway Company (Pa.) single-phase system traversing the valley of Conewango Creek, through which the waters of Lake Chautauqua empty into the Allegheny River. The power house of this road is located at Stoneham, 5 miles south of Warren, Pa., on account of its proximity to the natural-gas pipe lines from which its fuel supply is obtained. The

equipment includes two 300-kilowatt alternating-current generators of the revolving-field type, which are direct-connected to horizontal gas engines, operated at a speed of 150 revolutions per minute. The two units are connected in parallel. A plant of similar nature has also been installed at Independence, Kans. In these horizontal double-acting gas engines the builders have sought to construct a prime mover simple in design and in operation, substantial and permanent in construction, reliable in working, and insuring the best economy compatible with simplicity. The resemblance to approved steam-engine practice is strong, and the engine should be considered not as an example of radical change in construction, but as an adaptation to gas working of the experiences of builders in the design of the Corliss steam engine.

The largest gas engine employed in street-railway practice appears to be the 3,000-horsepower engine installed in one of the power houses of the Georgia Railway and Electric Company of Atlanta. The engine in question, which gives a striking idea of the development already reached by prime generators of this kind, is a 3,000-horsepower horizontal, twin-tandem, 4-cycle, double-acting machine, with cylinders 39 by 54 inches, direct-connected to a 2,000-kilowatt, 3-phase, 25-cycle, 6,600-volt alternator. It occupies a floor space of approximately 64 feet 10 inches by 32 feet 2 inches. The weight of the fly wheel, which has a diameter of 20 feet, is 42 tons, and the approximate weight of the entire engine is 62½ tons. The engine makes 94 revolutions per minute and supplies current for both the railway and the lighting rotaries for the system of the Georgia company.

Reciprocating steam engines.—While the tendency toward the adoption of steam turbines in place of reciprocating engines appears to be overwhelming, not only in the electric-traction field but in kindred enterprises, the reciprocating engine is not without its advocates, and is still used. The best illustration of this adherence to earlier standard practice is furnished by the plant of the Pacific Light and Power Company, at Redondo, Cal. This company supplies electrical energy for lights and stationary motors, but the greater part of the current from its new station is used for operating the street railway at Los Angeles and adjacent suburban towns, including all the well-known Huntington systems of interurban roads. This plant has a normal rating of 16,000 kilowatts, divided into three 5,000-kilowatt units, generating current at the unusual potential of 18,000 volts, 50-cycle, 3-phase. These generators are of the fly-wheel type, and are operated in multiple with the previously existing apparatus of the transmission system of the company. The plant includes three 34 by 70 by 56 inch combined double horizontal and vertical compound side-crank engines, each having two horizontal high-pressure cylinders and two vertical low-pressure cylinders; each of which is also directly

connected to an alternator. The particularly interesting point about this plant is that it utilizes crude oil obtained from wells near it. Owing to this system of oil firing, the boiler-room labor cost is at a minimum, and in view of the remarkably low fuel consumption the statement has been made that this plant is developing energy at a cost probably lower than that of any other large American central-station plant. The contract covering this station, made under a bonus agreement, embodied an economy guarantee providing for a fifteen-day test of one unit on a commercial railway load under any load curve within the limits of the rated output of the generator; the total output to be not less than 60,000 kilowatt hours nor more than 78,000 kilowatt hours for 19.5 hours of run, there being 4.5 hours standby each day. On this load the contractor guaranteed an output of electrical energy of 170 kilowatts per 334-pound barrel of oil, each pound of which contained 18,500 B. t. u.¹ The committee, reporting on this fifteen-day test, gave the result as 252.8 kilowatts per barrel of oil, a performance equivalent to slightly less than 25,000 B. t. u. in the fuel output. The bonus earned as a result was \$363,310, undoubtedly the largest ever paid on such a steam-power plant guarantee.

Production of electrical energy.—In Chapter III, Part I, Statistical, figures of power-plant equipment are very fully discussed and a variety of tables are included as to the number and size of steam engines, water wheels, gas engines, etc., and the dynamo-electric generators that they drive. Beyond the discussion already given, it is not necessary to recapitulate here those data.

With regard to the total output, as related to the capacity of the plant, the cars operated, the car miles run, or the passengers carried, it may be pointed out that these figures are, in general, subject to qualifications which would prevent reaching a very exact determination as to the exact amount of prime power or electrical energy employed in operating a car mile or in carrying one passenger. It will have been noted that the income of electric railways from the sale of current for light and power amounted to \$20,093,302 in 1907. Of course all this current sold should be deducted from the current available for the operation of cars, but as no data as to charges made for such current are available, and as prices per kilowatt hour vary from a fraction of a cent to several cents, it is obviously impossible to determine from the income just what quantity of current was sold. Subject to such qualification, however, it would appear that the 1,617,731,300 car miles were operated at a nominal kilowatt output of 4,759,130,100 kilowatt hours, a consumption of slightly less than 3 kilowatt hours per car mile. This amount of electrical energy was

¹ The British thermal unit is the quantity of heat which will raise the temperature of one pound of water one degree F., at or near its temperature of maximum density, 39.1°.

produced by dynamos having a rated capacity of 1,723,416 kilowatts; the average operation was thus at the rate of 2,761 kilowatt hours annually per kilowatt capacity of dynamo. The number of passengers carried, including transfers and free passengers, was 9,533,080,766, or the consumption of energy per passenger was almost exactly 0.5 kilowatt hours. This, however, is again subject to deduction, for the reason that an appreciable amount of the business of the electric railways was the handling of freight, express, and mail matter.

The number of cars in use in 1907 was 83,641, showing a provision in the power house of slightly less than 21 kilowatts per car. In the report for 1902 the provision per car was given for various groups of roads and ranged from 10 to 38 kilowatts per car, the latter amount being provided for cars of the heavier types on interurban roads; the average for all companies being 13.5 kilowatts. The general average for 1907 (20.6 kilowatts per car) is generally applicable, owing to the fact that not only on interurban roads but also on city lines the tendency has been wholly toward the introduction of a larger, heavier type of car, carrying more passengers than the cars that were in vogue in 1902. The figures as to current consumption per passenger or per car mile should be accepted with great reserve, owing to the various elements that enter into the problem, such as size of car, season of the year, condition of track, number or steepness of grades, condition of wheels, the use of trailers, the employment of overhead contact, slot contact, or third rail, and other elements, all of which have a considerable effect upon current consumption.

Data of production costs.—The following figures covering a period of one year have recently become available in connection with the cost of producing electric power in a generating station devoted to interurban railway service. The plant is a turbo-engine alternating-current station equipped with two 65-horsepower and three 500-horsepower water-tube boilers, and three generating units. One unit is a 2,000-kilowatt, 13,200-volt, 25-cycle, 3-phase steam turbine set, and the other two are reciprocating engines direct-connected to high-grade alternators of 500-kilowatt and 1,000-kilowatt rating. The plant is hand fired, natural draft being used; the operating steam pressure is 150 pounds per square inch. The current generated at the station is delivered to transmission lines supplying rotary converter and step-down transformer substations, the cars being served with direct current at 600 volts. The road is about thirty miles long from end to end, most of the line being double tracked, with several single-track branches, aggregating a total length of track of 79.06 miles. The passenger-car mileage during the year was 1,820,985.

The total number of kilowatt hours generated during the year and delivered at the alternating-current busbars of the power plant was 10,050,616. Of this

energy, 8,095,060 units were delivered at the direct-current busbars of the four substations, giving a transmission and reduction efficiency of about 80 per cent; and the individual substations utilized from 1,500,000 to 3,000,000 kilowatt hours each, according to their locations and loading. The total expenses of station and substation operation were as follows:

	Station operation.	All substations.
Total.....	\$82,619.30	\$2,048.87
Coal.....	58,295.52	
Wages.....	15,630.30	1,840.59
Supplies.....	3,239.61	206.28
Repairs, steam.....	3,500.35	
Repairs, electrical.....	1,063.62	

The cost of coal in this station for the year averaged \$4.80 per ton. The plant is located about twenty-two miles from tide water, and the fuel had to be teamed to the storage yard before it could be wheeled into the boiler room. The total operating force consisted of 3 engineers, 4 oilers, 9 firemen, and 4 coal passers. The condensing engines and turbine were operated with a cooling-tower installation having motor-driven fans and pumps to make up the water supply by repeated use of the condensation; jet condensers were used on the engine sets, which were cross-compound units. The turbine outfit is not operated while the station is running under light or average loads. The usual surface-condenser installation is provided for the turbine, with an extra large allowance of cooling surface on account of the high temperatures sometimes reached by the water in the summer season. The total coal consumption of the plant during the year was 12,150 tons, New River being the kind of fuel used. The unit cost of operation is given in the following statement:

	Cost per kilowatt hour alternating at generating plant (cents).	Power-station cost per kilowatt hour, direct current at substations (cents).
Total.....	0.822	1.045
Coal.....	0.581	0.720
Wages.....	0.155	0.216
Supplies.....	0.035	0.045
Repairs.....	0.051	0.064

II.

SUBSTATIONS AND CONVERTERS.

Effect of using alternating current.—The marked tendency toward the adoption of alternating current is shown particularly in the statistics of substations. In 1902 only 105 companies employed substations, whereas in 1907 the number had increased almost threefold and had reached 312. As a matter of fact these figures do not tell the whole story, as a great

many generating plants include substations within themselves, as shown by the statistics on the apparatus. The evolution in this respect has been in many instances toward the combination of generating plant and substation due to the consolidation of smaller roads into one system or network. Where it has been found desirable to carry out such a process of consolidation and to generate current on a large scale, the various power plants of the smaller roads acquired have sometimes been dismantled or abandoned, but the original generating machinery has very often been left intact, thus constituting a reserve in case of any inadequacy on the part of the distant main power plant. This is again the case where water power is depended upon. In many instances the distant hydro-electric source delivers its current to substations in which are located complete steam plants, ready to start up at short notice in case of interruption or a breakdown of the transmission circuits.

A large quantity of current is purchased by traction companies from central electric light and power stations. In many such instances the traction company, as a measure of precaution, has maintained its own generating plants in readiness in its substations receiving the purchased electrical energy. These substations often are of such large capacity as to be equal to many of the actual generating plants in which no substation machinery is to be found. The chief features of modern substations included in this report are rotary converters, stationary transformers, reactances, switchboards, blowers for cooling the transformers, cables connecting the substations with the main generating plants, and occasionally storage batteries.

The substations in general use have apparatus designed for 3-phase working, based upon the use of 11,000-volt current with delta-connected transformers, and 33,000 to 66,000 volts with what are known as Y-connected transformers. Such apparatus is standard, with a frequency of 25 cycles per second. The standard rotary converters for 25-cycle work in railway service are compound wound, the series field being designed for a compound of 600 volts at no load and full load when supplied from a source of constant potential with not more than 10 per cent resistance drop and with 20 to 30 per cent reactance in the circuit. The 200 and 300 kilowatt machines are wound for 3-phase operation, but all the larger machines are usually wound for 6-phase. The 3-phase and 6-phase machines require different voltages from the stepdown transformers in the substation on account of the use of diametrical connections for 6-phase instead of the double delta.

Methods of operation.—Three methods of starting the rotary converters are in use, namely, the application of alternating current at reduced voltages to the collector rings; the use of the machine as a direct-current motor while starting; and the use of an auxiliary

starting motor mechanically connected. The use of the self-synchronizing alternating-current starting method is most common. The transformers employed are usually arranged on the unit system, namely, one bank of three single-phase transformers, or one 3-phase transformer to each converter, and these units are usually of a rated capacity about 10 per cent in excess of that of the converter. Such transformers are of the oil-insulated and the air-blast types. The latter are limited to work done with a nominal line potential not to exceed 33,000 volts, while the others may be used for higher voltages. Air-blast transformers are always made of the shell type and are practically used in large sizes where water is not available for the purpose of cooling the cores. Three-phase transformers, as compared with three single-phase transformers of corresponding aggregate capacity, have greater compactness, lighter weight, and lower first cost, and their use is usually preferred except for stations with one converter, where a spare transformer may be wanted; or in the largest size where the weight of the 3-phase transformer would render it unwieldy to handle. Air-blast transformers are used with a pressure varying between one-half ounce per square foot for the small size and 1 ounce for the larger size, and blower sets usually comprise 3-phase induction motors, driving down-blast, steel-plate fans, direct connected. For change to direct-current voltage by the field rheostat or automatically by compounding, which calls for a corresponding change in the alternating-current voltage, a 3-phase reactance coil is provided between the low-tension winding of the transformer and the converter. Standard reactances are rated in kilovolt amperes, equal to 15 per cent of the kilowatt rating of the converters which they accompany. Either air-blast or the oil-cooled type of reactance may be used for rotary converters of any capacity with the exception of 200-kilowatt converters for which oil-insulated transformers and reactances are available; air-blast reactances being used with air-blast transformers, and oil-cooled reactances with oil-insulated transformers of either the self-cooling or the water-cooled type. From substations of this general type, and with this general apparatus, the direct current is delivered directly to the consumption circuits, although in a great many instances storage batteries are associated with the equipment as an emergency feature.

Work of Oregon Electric Railway.—A typical illustration of substation work may be cited from the Oregon Electric Railway Company's system, begun in 1906 and opened in 1908, operating between the cities of Portland and Salem with branches, and utilizing 5 substations distributed along the 70 miles of line to feed the middle sections, while the ends of the line are fed from substations belonging to the local power companies in Portland and Salem. These substations are built of reinforced concrete, with corrugated iron roof on steel beams. As is usual in such work the sub-

station is also made to serve the purpose of a waiting room and ticket office. The attendant acts as electrician, station agent, and telegraph operator. Each building is divided into two parts, namely, the high-tension compartment, which contains the lightning arresters, disconnecting switches, oil switches, etc., and the operating room, which contains the transformer, switchboard, and converters. The high-tension compartment is divided into two stories, the upper one containing the oil switches and the lower one the high-tension busbars.

The low-tension wiring for alternating current and direct current is carried in fiber conduits embedded in the concrete floor. The system is designed for 60,000 volts, but is operated at 33,000 volts. The high-tension line with this voltage enters the building under a weatherproof hood through 18-inch holes, and passes down the inside wall through a disconnecting switch and a choke coil to the lower room, where it crosses to the high-tension busbars. The lightning arresters are fastened to the rear wall and are separated from the disconnecting switches and the choke coils by concrete barriers. These lightning arresters are connected through disconnecting switches to the line just after it enters the building. From the high-tension busbars tap circuits pass through disconnecting switches up through the floor to the oil switches, and then down again and through the partition wall to three 185-kilowatt transformers connected in delta, stepping the current down from 33,000 to 430 volts. From these transformers four circuits are brought out from the secondary winding of each transformer and are connected in diametrical 6-phase relation to a 500-kilowatt synchronizing converter, which delivers the direct current to the consumption circuit. This converter has speed-limiting devices and a low-voltage circuit breaker. A range of voltage to meet all conditions is secured by a 75-kilowatt ampere reactance coil in each substation, also by 5 per cent taps on the low-tension side of the main transformer at Oregon City, where the transmission line begins, and 2.5 per cent taps on the high-tension side of the substation transformers. It should be mentioned as illustrative of the practice which also prevailed in many of these transmission systems that the electrical energy generated at the hydro-electric plant in Oregon City for the system is delivered at 10,000 volts by the dynamos and stepped up to 33,000 volts for transmission by three delta-delta connected 33-cycle, 750-kilowatt, water-cooled, oil-insulated transformers, which are housed in a reinforced concrete building. Without going into further detail, it may be said that this system serves to illustrate the latest standard practice in connection with such electric-railway work.

High-voltage practice at Syracuse, N. Y.—An interesting example of the use of 60,000-volt current in connection with substations is to be found in the city of Syracuse, where electrical energy generated at Niagara

Falls is utilized. The transmitting distance is approximately 165 miles, and the Syracuse installation is one part of the comprehensive plan for supplying all the central portions of New York state with hydro-electric power developed at Niagara. This electrical energy is generated at the Canadian hydro-electric plant of the Ontario Power Company, and is delivered to the transmission line of the Niagara Falls, Lockport, and Ontario Power Company as 60,000-volt, 3-phase, 25-cycle current. At the city line of Syracuse it is delivered to the transmission circuits of the Syracuse Rapid Transit Railway Company at practically 55,000 volts, estimating a loss of 8 per cent for the total distance of 165 miles. From the city line the high-tension circuit carrying this voltage runs along the Erie Canal to the substation of the Syracuse Rapid Transit Railway Company. In this substation the current is stepped down at one operation in lowering transformers from 55,000 volts to 430 volts alternating current, and is passed thence through the rotary converters and is delivered to the railway feeders at 600 volts direct current. In this substation the high-tension cables are brought in through three sections of 36-inch vitrified pipe piercing the wall, one pipe for each leg or side of the 3-phase circuit. Within each pipe is set a circular disk of half-inch plate glass, each plate having a 3-inch hole through its center, through which is passed the cable. The disk of plate glass is employed instead of the common method of filling in the vitrified pipe with cement. In addition to the usual apparatus of lightning arresters, oil switches, static interrupters, cut-outs, etc., a 50-cell, 40-ampere storage battery is installed, with the necessary incandescent lamps, switches, etc., for operating the various electrically controlled switches in the station.

III.

LINE CONSTRUCTION.

Increase of span wire.—During the five years from 1902 to 1907 there have been but few changes in the general standard of construction for city and inter-urban lines, the fundamental elements and conditions remaining the same. Warned by frequent breakage and interruptions, managers of both city and inter-urban overhead lines have been prompted to adopt heavier trolley wire and more substantial fittings and anchors, with the object of reducing failures and accidents and of prolonging the life of the overhead construction. In cities the old type of center-pole bracket construction has been largely discarded in favor of span-wire construction, which is less unsightly and, on account of its greater flexibility, less expensive to maintain. No. 00 wire remains as the standard on a large number of roads, although the period has witnessed the introduction of a considerable quantity of No. 0000 trolley wire on city lines.

Practice on interurban roads.—With regard to inter-urban roads the great increase in speed has been a

severe trial on the earlier type of overhead construction, so that in more recent work an effort has been made to secure as nearly as possible perfect alignment of trolley wire, while providing at the same time a greater degree of elasticity or resilience, thus absorbing the unavoidable blows of trolley wheel or contact bar due to the oscillation of the car body or to irregularities in the track.

The catenary type of construction.—A notable departure of the period is the adoption of what is known as the catenary type of construction, which is used on both alternating and direct current systems, and supports the contact service wire by means of long catenary spans between supporting poles, in the manner illustrated in this report. Catenary construction was adopted in this country primarily for use on single-phase alternating current lines, but its numerous mechanical advantages have led to its adoption by a number of roads using direct current. The advantages referred to consist in securing a wider pole spacing and flatter trolley wire; flexibility of suspension; the minimization of the effect of the blows of current-collecting devices at the suspension points; and finally a reduction in the frequency of the breakage of trolley wire under the strain of supporting the weight of the entire span from pole to pole. For high-tension alternating-current and direct-current trolley work the insulation possible from the practical standpoint with the old form of construction is insufficient, while with catenary construction the messenger or supporting cable can be insulated for the highest voltage yet proposed for any trolley line.

Miscellaneous urban examples.—With regard to ordinary city work the practice of a number of leading companies may be cited. The surface lines of the Boston Elevated Railway Company comprised in 1907 a total of 412.64 miles of track, using No. 00 round trolley wire and $\frac{1}{8}$ -inch 7-strand galvanized span wire on its construction. Little trouble was experienced from lightning on the trolley wires, and lightning arresters were put in only at the junctions of underground and overhead feeders, and at the power-station terminals. Some idea of the amount of construction work associated with such a system may be formed from the fact that it includes over 18,000 poles, more than 200 miles of underground feeding cable, and nearly 150 miles of underground return cable.

In Philadelphia the standard construction of the Philadelphia Rapid Transit Company includes No. 0000 groove trolley wire and $\frac{1}{8}$ -inch 7-strand, 5-span wire, with pole spacing at 100 feet and lightning arresters every 1,000 feet. There are 7 emergency stations in winter and 8 in summer, each caring for about 75 miles of line. The maintenance department is divided into regular maintenance crews, emergency crews, and a pole gang, each of which is under a separate foreman. The regular maintenance foreman has

two crews, each consisting of 2 linemen, a helper, and a driver; the pole gang consists of a foreman and 5 helpers; and the emergency foreman has charge of the stations above noted. The equipment of the station consists of 1 two-horse telescopic tower wagon and 4 horses, in addition to which 3 of the stations are equipped with telescopic tower cars for heavy work. The tower-wagon horses are kept in quick-hitching harness, and the rivalry between the various crews in establishing records for speed is encouraged by the company, which holds periodical competitions and offers prizes to the crew making the best time in leaving the house after receiving a call. The best record made was 55½ seconds. During the census year the 8 stations had an average of 1,048 emergency calls of all kinds per month.

In and around Los Angeles, Cal., the Pacific Electric Railway Company operates some 100 miles of city car lines and 400 miles of interurban system. The city lines are largely bracket construction with No. 0000 trolley wire "figure 8," and where span-wire construction is used $\frac{3}{8}$ -inch and $\frac{1}{2}$ -inch cable is employed. Poles are spaced 115 feet apart and the butts of all those of wood are impregnated with local crude oil as a preservative. It is stated that no lightning arresters are used on this system. The maintenance of the overhead city lines requires a force of 12 men and 1 foreman, 2 tower wagons, a tower car, and a gasoline automobile tower wagon. The resort to automobiles for this purpose has not become general, but has many recommendations. The car in question is a 30-horsepower commercial truck rebuilt and strengthened and carrying a large tool box as well as a material box, mounted on each side of the tower, and a fourth box under the rear of the car for storing rope and tackle. This automobile has performed the service of two tower wagons drawn by horses.

In Minneapolis and St. Paul, the Twin City Rapid Transit Company uses span-wire construction on practically all its 364 miles of city and suburban lines. The trolley wire is No. 000, supported by single anchors, and the span wire is 3-strand No. 11. The poles are spaced 100 to 110 feet apart, and the butts are treated with creosote for 3 feet of their length at the ground line. The insulation consists of a piece of maple, 12 inches long and square in section, which, before mounting, is thoroughly boiled in paraffin. It carries two bronze hanger castings and a malleable-iron sister hook. The hanger castings are designed for a driving fit over the ends of the maple insulating stick, and are secured by split cotter pins; the sister hook which slips over the wooden piece is held near the middle on either side by a cotter pin inserted through $\frac{1}{4}$ -inch holes in the stick. As thus assembled the hanger has a total depth of $7\frac{3}{4}$ inches, affording two ears $11\frac{1}{2}$ inches between centers for attaching to the trolley wire. The hanger is comparatively light, is a good insulator, and is readily renewable.

At Denver, the Denver City Tramway Company has adopted as its standard for new construction No. 0000 grooved trolley wire. For carrying single No. 00 trolley wire on standard old construction, $\frac{1}{4}$ -inch 7-strand span wire is used, but for double or single No. 0000 trolley wire or No. 00 trolley wire, $\frac{5}{8}$ -inch 7-strand wire is used. Span-wire construction is used and is the standard for all new work. Poles for both kinds of work are spaced about 100 feet apart wherever possible and are painted with carbolineum preservative compound at the butts. Lightning arresters of various types are employed at intervals of from one-third to one-tenth mile, according to the location of the line and the local prevalence of trouble from lightning.

The Detroit United Railway has for all its city lines span construction with No. 00 trolley wire and $\frac{1}{4}$ -inch 7-strand span wire, poles being spaced 110 feet apart, with lightning arresters 3 to the mile, except near substations, where they are placed 7 to the mile. The companies at Milwaukee, Wis., employ No. 0000 trolley wire of grooved section with span-wire construction and pole spacing of 110 feet, with 8 to 10 lightning arresters per mile of track. The city is divided into three districts for emergency line repair work, and a station serving about 40 miles of line is located in each district. The Louisville Railway Company, of Louisville, Ky., has No. 00 round trolley wire and $\frac{1}{4}$ -inch span-wire cable. Poles are spaced 100 feet apart, with the butts painted with crude oil to prevent decay; and lightning arresters are placed 5 to the mile. No center-pole bracket construction is used.

At Indianapolis, Ind., the Indianapolis Traction and Terminal Company uses No. 00 round trolley wire and $\frac{3}{8}$ -inch 7-strand cables for span wires. The poles, which are not treated with any preservative compound, are spaced 100 feet apart on both bracket and span-wire construction. At Birmingham, Ala., the Birmingham Railway, Light and Power Company employs No. 000 grooved trolley wire as its standard, supported by $\frac{3}{8}$ -inch 7-strand extra galvanized iron wire for double-trolley work and $\frac{1}{4}$ -inch or $\frac{1}{2}$ -inch span wire for single trolley. Poles are spaced 100 feet apart for both span-wire and bracket construction, the former type of construction greatly preponderating. The entire length of the poles used is treated by the vacuum creosote process, 10 pounds of creosote per cubic foot being the injection; and lightning arresters are spaced 7 to the mile.

Bracket construction with and without catenaries is still found extensively in connection with some of the interurban systems. The older lines of the Indiana Union Traction Company, for example, comprising about 200 miles, are built with span-wire construction, but some of the more recent work of nearly

equal length has been put in with bracket construction. The Cleveland, Southwestern and Columbus Railway system has 138 miles of side-bracket pole construction and uses span wire only in cities and towns. With this bracket construction its poles are spaced 110 feet apart and lightning arresters are spaced one-third mile, except near substations, where from 6 to 7 per mile are put in. The Fort Wayne and Wabash Valley Traction system has 140 miles of bracket construction and 37 miles of span, chiefly on sharp curves and in cities.

Various styles of catenary.—Rudimentary forms of catenary construction have long been familiar in this country, in the construction of loops of wire for the purpose of holding up by frequent clips the telegraph and telephone cables, the weight of which would otherwise cause too much sagging and bring them too near the ground, thus overstraining the insulating supports. As originally developed for traction work, in improved forms, catenary construction was intended for single-phase alternating-current lines, but, as already noted, has been adopted for both alternating and direct current. The single catenary type of suspension is that in which there is one upper catenary wire to which the lower current-carrying wire is attached vertically below. A typical illustration is that furnished by the Oregon Electric Railway system, put into operation in 1908, where a $\frac{1}{4}$ -inch galvanized steel messenger cable, as it is called, having a safe tensile strength of 12,000 pounds, is suspended from the insulators on brackets with 150 feet span, and anchored every half mile on straight track and at the end of every curve. At the curve the construction is modified by stringing a $\frac{1}{4}$ -inch galvanized steel cable between the supports, which serves as a spring guy, to which $\frac{1}{4}$ -inch pull-off bridles are attached at 15-foot intervals, thus making a very smooth curve. The contact wire is No. 0000 hard-drawn copper which is suspended from the messenger cable at intervals of 15 feet, and section insulators are provided at every substation so that this network can be cut out between any two stations without affecting the rest of the line. The insulation of all this catenary construction is particularly well made and is in reality designed for 1,500 volts, so that later this pressure can be used, thus increasing to a very large extent the current-carrying capacity of the entire system without disturbing in any way the overhead trolley wire or feeder installation. This catenary line is employed for direct-current work.

Another type of catenary is shown in the work of the Syracuse, Lake Shore and Northern Railroad between Baldwinsville and Fulton, N. Y., where over



TRAIN ON NEW YORK, NEW HAVEN AND HARTFORD RAILROAD, SHOWING OVERHEAD CONSTRUCTION



BRIDGE SUPPORTING CONSTRUCTION, NEW YORK, NEW HAVEN AND HARTFORD RAILROAD.

200 steel catenary bridges have been put in to carry the double-track overhead-line construction. These bridges, resembling the familiar signal bridges that are seen along main lines of steam railroads, are made up of two A-frame side towers and a connecting truss across the track built of light angles and channel iron. Each foot of the A-frame is mounted on a concrete foundation pier 2 feet by 2 feet, of varying depth; the cross truss is 30 feet long and its top chord is approximately 25 feet above the rails. These bridges are spaced not less than 300 feet apart on tangents and 70 feet on curves. The messenger cable is $\frac{3}{4}$ -inch in diameter, stranded and galvanized, and supports a No. 0000 copper trolley wire. In the original construction $\frac{3}{4}$ -inch steel-rod anchors from the messenger to the trolley wire were spaced 10 feet apart, or 30 to the span, but in order to give greater flexibility this space has been increased to 30 feet, or 10 to the span; the longest anchor is $77\frac{1}{2}$ inches in length. While direct current has been adopted, the line is electrically insulated for 6,000 volts alternating current, which may be used. It is asserted that these catenary bridges, which provide much greater stability to the whole overhead line, cost only \$800 per mile more than standard double-track, wooden-pole bracket, span-wire construction.

An illustration of direct-current three-point catenary suspension is furnished by the Texas Traction Company, constructed, but not in operation, during 1907, between Dallas and Sherman, an operating distance of 60 miles, and using 600-volt current. Idaho cedar poles, 40 feet long with 7-inch tops, set 7 feet 6 inches in the ground, are used to carry the brackets. They are spaced 150 feet apart on tangents and curves not exceeding 3 degrees, but on sharper curves the span is reduced proportionately, being only 55 feet on a 20-degree curve. The messenger cable is $\frac{3}{4}$ -inch 7-strand steel, and the trolley wire is No. 000 grooved copper, stretched 19 feet above the rails. Steady braces on the trolley wires are located at each feeder tap and halfway between taps, averaging about 500 feet apart, and are also used on each bracket and curve in connection with bridle pull-offs. The trolley messenger wires are anchored every half mile on tangents and at the ends of curves; and all catenary wiring is insulated with 9-inch wood strain insulators. In cities and towns through which the line passes span-wire catenary construction is used.

Catenary on main lines of railroad.—The catenary construction of the single-phase alternating-current system of the New York, New Haven and Hartford Railroad is the most conspicuous instance of this method in operation in this country. This road furnishes an example of successive evolution and improvements during and since its construction in the census period. The original catenary construction has the working conductors suspended from two messenger cables by terminal supports or anchors, the cate-

naries being carried by bridges, which also serve to support signal and other apparatus, the simple and the more complicated forms of bridge being illustrated herewith. In switch yards of the line a more flexible construction has been adopted by supporting the catenary from span wire instead of from bridges, while on still other sections, as for example the New Canaan branch, a single catenary has been employed. In the latest developments, shown in the accompanying illustrations, the auxiliary conductor has been attached by short clips to the single working conductor used in the earlier work, these clips being located midway between the triangular anchors of the messenger cables, or at a distance of 10 feet apart, so that each clip has a flexible support. Where the line passes under very low highway bridges this form of construction is modified by substituting for the single clip and the single working conductor a double-arm clip, which supports two working conductors in the same horizontal plane and permits the trolley contact bow on the top of the locomotive to make two contacts. The new working conductor is of steel and No. 0000 in size, while the former working conductor, which now serves simply as a support, is of copper. In speaking of the various features connected with this later development of construction, Mr. W. S. Murray, the electrical engineer of the railroad, says:

Very soon after the commercial service was put on an electric basis, it was found that the current-collecting device on the electric locomotive, commonly known as the "shoe," was producing two very serious effects on the copper wire: (1) Reducing its cross section by wear, and (2) kinking it badly at the point of suspension. The result of the combination brought about fractures of the trolley (the messengers never breaking). Moreover, on account of the extreme roughness of the copper wire, due to kinking, the locomotive shoe was constantly interrupted in its contact with the trolley, delivering, and in turn receiving, hard blows in its uneven progress along the line and causing excessive sparking. The fourth wire has proved the panacea of all of these troubles. During the past three months of operation upon it absolutely no kinking has been noted and the wear is inappreciable. In the original form of construction where the locomotive shoe made contact with the copper wire, it was found that on account of the high expansion properties of copper wire, changes in temperature lengthened considerably the span between the hanger points, and because of the ductility of the copper the passage of the shoe at high speed, with some considerable upward pressure, gathered up the slack in form of a kink at the hanger point. Steel does not possess this disadvantage, as it has a much lower expansion coefficient than copper, is not ductile, and has no tendency to kink.

IV.

TRACK CONSTRUCTION AND RAILS.

General details with regard to track and rails will be found in the statistics of Chapter IV, Part I, and the tables accompanying it. From the data therein given it seems that a very large majority of the trackage of street railways is equipped with rails of either the girder or the T type. As already noted, in 1902 there were 364 of the 388 roads using T rails in part

which reported T and girder rails, and of 814 roads all but 10 used either T or girder rail in whole or in part. In 1907 T or girder rails were reported by all but 12 of the 944 companies making reports under this head. As the question of rails is closely connected with the general problem of track construction and paving, the two must be discussed together.

Evolution of track at Minneapolis.—Track work is largely a process of evolution, and the history of Minneapolis may be taken as a case in point. Prior to 1896 the only paving in Minneapolis was old-fashioned untreated cedar blocks laid upon pine boards, with granite blocks laid upon this as a base. In the spring of that year, owing to the unsatisfactory condition of the business streets, the city council decided to experiment with asphalt, and made a contract for the paving of the commercial district with that material. The Minneapolis Street Railway Company protested vigorously against the use of this material adjacent to street-car tracks, as the life of asphalt depends upon an absolutely rigid foundation, and it was not thought possible to deaden or wholly prevent the vibration due to the passage of cars. The asphalt paving, however, being decided upon, the company put in a high grade of construction, laying the rails in Portland cement with welded joints, and with ties spaced two feet apart. The asphalt was laid down between the tracks and up to the outer edge of the tracks, which were protected by granite blocks. In a very short time the paving adjacent to the tracks showed signs of disintegration and within two years repairs were begun, which continued almost without interruption until 1906, before which date all the construction had been taken up and replaced. The company then adopted its present method, which has been applied not only to the paved streets but throughout the city, until practically all the tracks in use to-day have been rebuilt with heavier rails, leaving only a very small percentage of mileage in the city as it was in 1896. According to the later method, after the old tracks are torn out and the roadbed is made ready for the reception of the new rails, 6 inches of crushed rock is thoroughly rolled by steam rollers. On this bed the ties are laid 2 feet apart, the space between being filled with concrete and firmly tamped, and on these ties, 91-pound rails with welded joints are spiked. The spaces between the rails of each track and between the double tracks are then paved with cut-granite blocks, thoroughly grouted with Portland cement. This style of pavement has proved satisfactory, and is a preferred highway for bicycles, automobiles, and general traffic.

Track construction in Detroit.—In Detroit the Detroit United Railway has adopted a system of T rail for all city streets. The T-rail section used is 7 inches high, and weighs 91 pounds per yard; the space is 6 inches wide, the curb $\frac{1}{2}$ inch, and the head

2½ inches wide by 1½ inches deep. The substructure of the track is the same in four varieties of construction. A bed of concrete 8 inches deep and 7 feet 6 inches wide is first deposited on the subgrade. This concrete is mixed in batches containing 1 cubic yard of stone, $\frac{1}{2}$ cubic yard of sand, and 5 sacks or 1½ barrels of Portland cement. A machine mixer with a capacity of 1½ cubic yards, mounted on a flat car which is worked in connection with a crane car and dumping bucket, is used, working from the other track. When a batch is mixed it is discharged into the dumping bucket, which is handled by the crane car and dumped wherever required. The concrete being mixed wet is thoroughly tamped to a level surface. After this lower bed of concrete has been allowed to set for from six to ten days a 1-inch layer of clean, sharp sand is spread over the top, on which cushion of sand the oak ties 6 by 10 inches by 7 feet are laid, spaced 24 to 30 inches apart. The rails are then laid down; the ties gauged and spiked with standard cut spikes; the track is brought to perfect surface and alignment; and the bed of sand thoroughly tamped under the ties. The concrete mixer and crane car then deposit concrete solidly between the ties and over them to a thickness of 2 inches, completely embedding them and the sand cushion. On the top bed of concrete another layer of sand 1 inch thick is spread, and upon this are laid 4-inch paving brick, except in the case of nose-brick construction. The nose blocks or filler blocks are embedded in a layer of concrete and covered by it. The web of the rail in all cases is grouted $\frac{1}{2}$ inch thick on each side. Three rows of brick are laid longitudinally outside each rail, and the space between the rails is paved with the same size brick laid in transverse rows with staggered joints, a construction common to all types of street paving, including asphalt, macadam, and wood block. The surface of the brick paving is finally finished off with a thorough grouting of sand mortar. The company prefers nose-block construction in place of brick, and this will hereafter probably be part of the standard construction above described.

Methods adopted at Buffalo.—In Buffalo the International Railway Company in paving streets uses a grooved girder rail of 140 pounds laid on steel ties 5 feet long and spaced 5 feet apart. A concrete beam 19 inches deep and 12 inches wide is built under each rail, and the ties are embedded in the center connecting slab of concrete, which is carried down 5 inches below the bottom flange. Between ties this center slab is reduced to 6 inches in thickness. On top of the concrete is laid a 2-inch sand cushion on which Medina sandstone paving blocks are set. The paving is crowned between the rails, and on the outside alternate header and stretcher blocks are laid, into which the roadway pavement is worked. Tie-rods 2 inches by $\frac{1}{2}$ inch are spaced 5 feet apart between the ties and



VIEW FROM RAIL ON ONE OF A RAILWAY TRACK



TRIP TO THE WEST JERSEY AND NEW YORK RAILROAD

embedded in the concrete paving foundation. Both hand and machine mixed concrete in the proportions of 1 cement, 3 sand, and 6 stone are used.

Milwaukee track and pavement.—At Milwaukee two forms of T-rail track and pavement construction are used, one for brick pavement and the other for asphalt roadways, the "devil strip" between the tracks being paved with granite blocks. In both types the substructure and track construction are the same. A trench 7 feet 6 inches wide is excavated under each track to a depth of 6 inches below the bottom of the ties, which are 6 feet 6 inches long and are untreated. Ninety-five-pound T rails 7 inches high are laid, joined by cast welds, which are spaced opposite to each other on straight track. After the track is laid and blocked up to the surface of the trench, concreting is begun, for which purpose a motor-driven machine mixer, taking current from the trolley line, is used, mounted on a 4-wheel truck. The spout of the mixer discharges the concrete with a belt conveyer mounted on a long-swinging arm, which can reach across the entire width of the roadway, so that the concrete foundation for the track and roadway pavement can be filled in at one time, if necessary, with the same machine. In both the brick and asphalt paving construction the surface between the rails is crowned and the paving blocks are fitted in squarely under the head of the rail. The stretchers on the outside are put in flush with the top of the rail.

Reconstruction work at Chicago.—In Chicago, where very thorough reconstruction work has permitted the adoption of modern methods by the companies, the rail section used is a special design of 8-inch grooved rail, weighing 129 pounds per yard. Both steel and wooden ties are used, the steel ties being 4½-inch girder section, spaced 5 feet apart, center to center, and the wooden ties untreated pine, 6 inches by 8 inches by 7 feet long, spaced 4 feet apart. Among the difficulties of reconstruction was the tearing out of the old cable slot and conduit, embedded in concrete. The cast-iron yokes which formerly carried the cable sheaves were broken off with battering-rams and the cable trough was completely uncovered, although the concrete below the top surface of the trough was not disturbed. Multiple duct feeder cable conduit was then led in the old cable trough and covered with earth thoroughly tamped. Upon this the ties were distributed, and the rails laid down and fastened to the ties with bolted clips for the steel ties and screw spikes for the wooden. The track was then brought to surface and alignment by temporarily blocking up the ties in the trenches, leaving a space of about 6 inches under them; and concrete was deposited in the trench and tamped thoroughly under the ties and to a depth of 1½ inches over them. In about two days the stone-block paving was placed on the concrete in order to protect the exposed rails. After the concrete had set for seven days welding was begun and the paving, left open at the joints placed opposite each other, was not

completed until after the grinding car had passed, a method which has been followed in later work. An interval of seven days was allowed after the welding before traffic was opened on the new track. The track of the Chicago City Railway Company has been electrically welded.

Practice in Philadelphia.—The Philadelphia Rapid Transit Company has used a special 137-pound 9-inch girder rail for all its new track construction in streets. This rail is virtually center bearing with a 3-inch tread; the gauge line is moved in ¼ inch from the center of the web, and the rail can withstand prolonged side wear before being materially weakened. The groove is self-cleaning, offering little obstruction to vehicle travel, and is deep enough to allow an extra amount of top wear on the rail head. The rail joints are of a composite or zinc type, consisting of two special fish plates with 12 rivet holes, which are riveted up, and the interstices between plates and rails filled with molten zinc, after preheating to a temperature of 350 degrees each; a high electrical conductivity and mechanical strength is thus obtained. All joints in both straight and curved tracks are staggered. Two forms of construction, depending upon the nature of the traffic, are used for the track substructure. For substructure with moderate traffic yellow-pine ties 5 inches by 9 inches by 8 feet, spaced from 24 to 26 inches apart, are laid on broken-stone ballast. The rails are fastened to the ties by bolted braces made of malleable iron, and secured to the top of the ties by three ½-inch lag screws before the ties are laid. The vertical leg is drilled for 2½-inch bolts, one of the holes being tapped with standard threads. The rails are placed on the ties and adjusted to slightly wide gauge. Bolts are then passed through the holes in the web of the rail and the vertical leg of the brace, and by tightening the nuts the rails are brought to exact gauge, and are held firmly in place by set screws put in the threaded holes of the braces and tightened up against the web of the rail. Concrete-beam construction is used for track subject to very heavy traffic in the center of the city, where the rails rest on continuous concrete beams 18 inches wide and 14½ inches deep, joined between the rails by a slab of concrete 6½ inches deep. This monolithic structure is reinforced at intervals by cross rods embedded in the center slab and bending down in the side beams. The rails are anchored to the concrete by attachment to the cast-iron yokes embedded in the beams at intervals of 5 feet, this attachment consisting of two clips bolted down on the base of the rail with ½-inch bolts working in transverse slots in the top of the yoke. In bringing the track to gauge two set screws bearing on these clips are used in adjusting the position of the rail laterally. The clips hold the rail down firmly on the top surface of the concrete beams and prevent heaving, while yokes simply anchor the rail down, but do not carry it.

Miscellaneous examples.—These examples embody most of the features of modern street-railway track construction as developed during the period of this report. There are, of course, many variations of practice, depending upon local conditions; in some instances, governed by the requirements of municipal authorities as well as by the amount of capital, it is deemed wise to invest in view of the travel to be expected. The Birmingham (Ala.) Railway, Light and Power Company makes use of blast-furnace slag in place of gravel or broken stone for track foundations and in concrete.

General adoption of T rail.—With regard to systems which are both city and interurban, the general adoption of T rail is specially to be noted, and there are several examples. The Auburn and Syracuse Electric Railroad and the Rochester, Syracuse and Eastern Railroad, for instance, now have the greater part of their city lines laid with T rail. On the Auburn and Syracuse line 90-pound A. S. C. E. section rail has been laid to replace girder rail in several streets in Auburn and Skaneateles, where pavements were of brick or macadam, and the results have been generally satisfactory, it is stated, to the company, the city authorities, and the public. About twelve years ago considerable trackage was laid in Auburn of 6-inch 70-pound girder rail, the head of the rail being only $\frac{1}{2}$ inch above the tram, which was common practice at the time, the wheel flange usually being only $\frac{1}{2}$ or $\frac{3}{4}$ inch high. This rail served its purpose until the advent of the interurban cars with wheel flanges $\frac{1}{2}$ inch high or more. With the consent of the city authorities 90-pound T rail has been substituted. The T rail was laid on new ties with 6 inches of stone ballast underneath, the space to the top of the rail being filled in with broken stone, with a top dressing of fine stone in a binder. No repairs have been made to this track since it was put down, except to keep the space between the rails up to the level of the street by spreading fine broken stone over it once or twice a year. In all these pavements of brick or asphalt, the space between the rail and for 6 or 8 inches outside is paved with brick, a special-nosed block being used to form the flange way along the inside of the rail. This block is ordinary paving brick with a beveled corner made in full size and half size for breaking joints.

On the Rochester, Syracuse and Eastern Railroad, which passes through the streets of seven cities and villages, 90-pound T rail has been laid, and has been in service for a year or two under cars with a net weight as high as 84,000 pounds. Experience on this line brings out one of the objections to the use of the T rail in brick pavements. This consists in the fact that ice and snow freeze to the brick flange much more than is the case with the girder rail, and this impediment is

also much more difficult to remove than where the latter rail is used. With snow drifting, the frequency of service has not been sufficient to prevent the flange way filling up between the intervals of car passage, and serious difficulty has been experienced sometimes in maintaining operation on grades of from 4 to 8 per cent, unless a sweeper is kept constantly going over the track to prevent the drifting and the consequent filling of the flange way.

Steel ties and concrete beds.—Reference has been made above to the adoption of steel ties and concrete-line construction, and some details have been given of concrete work. The increased cost of wooden ties and their decreased quality have led to the adoption of these new forms which are now in general use. Earlier forms of steel ties for electric-railway work consisted of a 7-inch channel 7 feet long, placed on top of a 6-inch bed of concrete. The steel ties that have been developed more recently are designed to give the greatest strength and holding power for the least weight of material, and are made in three weights in one standard form, namely, 20 pounds per foot, $14\frac{1}{2}$ pounds, and 9 $\frac{1}{2}$ pounds. The largest section has a depth of $5\frac{1}{2}$ inches with a top flange of $4\frac{1}{2}$ inches and a bottom flange of 8 inches; the intermediate section, a depth of $4\frac{1}{2}$ inches, top flange 4 inches wide, and bottom flange 6 inches; and the smallest a depth of 3 inches and a bottom flange of 5 inches. It has been the general practice to lay these ties with the wide flange on the bottom, the idea being that the greatest bearing resistance was thus obtained. The board of supervising engineers for the reconstruction of the Chicago City Railway conceived the idea of reversing this method, and laid the steel ties in the new track in that city with the wide base on top. If the tendency of a tie is to buckle, all other strains being equal, the tie thus laid with the wide flange on top has the greatest resistance on account of the increased area of the wider base. The concrete also can be placed and tamped more thoroughly under the flanges.

The most common fastening for steel ties is the steel clip with a bolt, which has proved satisfactory and is simple in design and use. In Chicago, however, the roads have deviated from this method of fastening and are using a tie plate $\frac{1}{2}$ inch thick, with special punching of the tie and special bolts and clips which can be removed from the top when it becomes necessary to renew the rail. The usual construction with steel ties for paving streets has already been mentioned in some of the foregoing descriptions. The spacing of ties is usually from 4 to 6 feet centers. The whole pavement is removed and excavation is made to the required depth for the pavement, sand cushion, and concrete, generally about 15 inches; cross trenches for the ties about 12 inches wide are dug about 5 or 6



HUDSON AND MANHATTAN RAILROAD—TYPICAL CROSS SECTION OF TUNNEL UNDER HUDSON RIVER



HUDSON AND MANHATTAN RAILROAD—UNDERGROUND STATION HUDSON RIVER TUNNEL.

inches below the bottom of the tie, and a trench 10 inches deep and 15 inches wide is excavated directly under the rail. The ties are placed in the tie holes and the rails are laid upon the ties, clipped to them, and surfaced and lined up as usual. The concrete is then placed under and around the tie and under the rail.

With regard to the relative cost of construction with wooden ties and steel ties, figures presented by Mr. Charles H. Clark, chief engineer of the New York and North Shore Traction Company, before the Street Railway Association of the state of New York, show a cost per 100 feet with oak ties on concrete of \$164, and with steel ties of \$133, a saving by the use of steel ties of 31 cents per foot, or \$1,636.80 per mile.

V.

CONDUIT CONSTRUCTION.

As was shown in Table 24, 11 companies were operated by conduits in 1902, while the number in 1907 was 10, but there was an increase of 21.3 per cent in single trackage, namely, from 266.06 to 322.70 miles. The methods of construction during the period have not varied greatly from those discussed in the previous report, but it can not be said that the conduit has gained in favor among electric-railway managers and operators. On the part of the public, however, in some cities a strong demand for the construction of conduit systems has been made, but its immense cost is still an obstacle, and on the whole the improvements effected have apparently done little to reduce the inherent difficulties.

During 1907 it was stated that on an average 100 electric cars per day on the conduit system on Manhattan Island, out of a total of 1,800 or 2,000 in use, were disabled by trouble from plows alone, although the plow had been greatly improved over the original design, and was then, as it is now, the subject of constant attention. Other difficulties encountered in the system lie in the maintenance of a constant width of conduit slot between the rails and of a constant uniform distance between the bar conductors carried in the conduit. A track can be kept closely to gauge by tie-rods and a slight difference in width of gauge is accommodated, so to speak, by the tread of the wheels, which readily adjust themselves. In fact, in large radius curves the gauge is frequently widened $\frac{1}{4}$ inch with a slot only $\frac{1}{4}$ inch wide. However—to take standard operative conditions—the conduit engineer is working with small dimensions and, of course, has no way of tying the slot rails rigidly together as a unit except by bracing them from below on the yoke by rods from the sides. In hot summer weather these rods often expand sufficiently to cause the slot to get tight, while in winter the slot rails are forced toward each other by ice forming between the interstices of the block paving. Hence tight slots constitute a constant hindrance to smooth running and are avoided only by the

greatest vigilance. In one single day during the winter of 1906-7 in New York no fewer than 800 cars out of 1,800 were disabled from this cause. If the trouble were confined merely to the destruction of the plow, which is relatively inexpensive, it would not be so serious, but the plow is heavy and necessarily held so firmly on the truck that a tight slot usually disables also the truck and other parts of the car.

With regard to the troubles connected with keeping in alignment the conductor bars in the conduit, it is only necessary to point out that on Manhattan Island the task involves endeavoring to keep in alignment to the fraction of an inch bars enough to stretch from New York to Buffalo, and located not out in the open where they can be easily seen, but in a conduit which is dark and too small to admit of the passage of a man. Moreover, the drifting of snow into the conduit in winter, with occasional setbacks of sewage or salt water during a high tide or after a heavy rainfall, adds to the difficulties of such work and tends to render conduit operation extremely expensive. Such reasons as these, therefore, account for the slowness of the extension of the system even in communities where the density of population and of travel would seem to justify the investment.

With regard to conditions in 1907, in testimony given before the New York Public Service Commission, Mr. Charles F. Uebelacker, then acting as chief engineer of the receivers of the Metropolitan Street Railway system of New York City, stated that the use of the underground conduit system greatly increased the cost of carrying passengers. The cost of installation was much larger, as well as indeterminate, since obstructions in the shape of pipes, etc., and the cost of relocating them could not be estimated in advance with any accuracy on account of the lack of correct maps of such construction. The expense of operation was also largely increased by the trouble experienced with the bare electrical conductors in the underground conduit, where they are subject to a great deal of moisture and can not properly be inspected. Mr. Uebelacker also stated that the plow was a great source of trouble, as it had to be made very narrow in order that the slot in which it moved should not be wide enough to catch the thinnest wheels of an ordinary light vehicle. Every time that a disabled car was pushed in, the expense of repairing the car and the cost of the delay on the road in getting the schedule of running time straightened out was considerable. Another cause of extra expense was the collection of snow in the conduits. Mr. Uebelacker stated that the expense for an overhead-trolley system in a large city would be about 16 cents per car mile, compared with 19 cents for an underground conduit trolley.

For some of the reasons here indicated and others involving the general financial circumstances, the maintenance of the conduit system of the Metro-

politan Street Railway in New York had not been adequate, and the receivers who were appointed in September, 1907, have since carried out various and direct improvements. The standard construction now followed by the Metropolitan system in all reconstruction and new work relative to trackage included in this report embodies a modification of the conductor employed originally when the cable lines were first built. Cast-iron yokes, spaced 5 feet apart and upward, embedded in concrete, support the track rails at their ends, and the Z-bar slot rails in the center. No wooden ties are used. The conductor rails are a special flange T-section supported in the trough by suspended insulators spaced 15 feet apart, accessible for renewal and inspection through hand-holes located in the pavement at every third yoke. The slot rail and track rails are connected with tie-rods between each pair of yokes so that the entire span is tied together laterally at intervals of 2 feet 6 inches. The slot rail rests on shoulders cast on top of the yokes and bolted through their bottom flange to the top flange of the yoke with a bolt on each side of the yoke web. Two methods are employed for fastening the track rail to the ends of the yokes, depending upon the height of the rail section. With the 7-inch rail used in streets paved between the tracks with asphalt the rail is bolted through the web to the ends of the yokes with three 1-inch bolts. Where the 9-inch rail is used in streets where the space between the tracks is paved with cobblestones, however, the rails are hook bolted over the bottom flanges with four bolts passing through the top flange of the yoke, on which the rail rests in a shoulder seat.

VI.

THIRD-RAIL SYSTEMS.

At the time of the last report considerable work had been done in the utilization of the third rail for conveying current to electric-railway tracks, chiefly on elevated lines. There were several sections, however, employed in surface work, as, for example, by the New York, New Haven and Hartford system on its Berlin division in Connecticut; by the Grand Rapids, Grand Haven and Muskegon road in Michigan; and by the Albany and Hudson road, between the two cities named in New York state. The newer developments of this class of work are chiefly connected with subway operation and with the electrification of lines on railroads hitherto dependent upon steam locomotives.

Third rail in New York subway.—One of the most notable instances of third-rail equipment during the census period is the Interborough Rapid Transit Company, which operates the elevated and subway lines in New York City. Each of the tracks constituting the subway system is provided with a contact third rail. There are consequently on the West Side 4 contact

rails from New York City Hall to West Ninety-sixth street, and 3 thence to One hundred and forty-fifth street, 2 from One hundred and forty-fifth street to Dyckman street, and 3 from Dyckman street to the northern terminal. From Ninety-sixth street, where the East-Side system branches off, there are 2 contact third rails to Mott avenue, and 3 from Mott avenue to the northern terminal at One hundred and eighty-second street. Each contact rail is insulated from all contact rails belonging to adjacent tracks, so that in case of derailment or of accident necessitating interruption of service on a given track trains may be freely operated on the other tracks, having their separate and independent channels of electrical supply. For example, the section of the subway between Reade street and Nineteenth street, equipped with 4 tracks, has the contact rail for each track, together with direct-current feeders that supply it from substations electrically insulated from all other circuits. Of each pair of track rails, one is used for the automatic block signaling system, and is therefore not a part of the negative or return side of the direct-current system. The other 4 track rails, however, are bonded, and together with the negative feeders constitute the track return or negative side of the direct-current system. The contact rail is of special soft steel, to secure high conductivity, its resistance being not more than eight times the resistance of bare copper of equal cross section. The rail weighs 75 pounds per yard; the length generally used is 60 feet, but in some cases 40-foot lengths are employed. Contact rails are united electrically by 4 bonds, aggregating 1,200,000 circ. mils. section. These bonds are of flexible copper, covered by special malleable iron fish plate, which insures alignment of the rail, and their terminals are riveted to the steel by hydraulic presses. Each length of rail is anchored at the middle point and a small clearance is allowed between the ends of the adjacent rails for expansion and contraction, which is not great, however, in the subway, owing to the small change of temperature. The contact rail is carried upon block insulators supported upon malleable iron castings, and castings of the same material are used to secure the contact rail in position upon the insulators. The Interborough company has provided a guard in the form of a plank 8½ inches wide and 1½ inches thick, supported in a horizontal position directly above and carried by the contact rail, to which it is secured by supports. This type of guard was developed on the Wilkes-Barre and Hazleton Railway (Pa.), and tried for nearly two years before it was adopted in the subway, where it has now practically eliminated any danger from third-rail contact on the part of employees or passengers, even should passengers have to leave the trains and walk through a section of the tunnel while the rails were charged. The adoption of this guard necessitated the use of a collecting shoe, differing radically from that used upon the Manhattan Elevated Railway and upon elevated railroads



HUDSON AND MANHATTAN RAILROAD—STEEL CARS USED IN TUNNEL.



HUDSON AND MANHATTAN RAILROAD—INTERIOR OF CAR.

in Chicago, Boston, Brooklyn, and elsewhere employing the unguarded third-rail system. This shoe is held in contact with the third rail by gravity reinforced by pressure from two spiral springs, and the support of the shoe includes provision for vertical adjustment to compensate for the wear of car wheels.

New York Central.—After extensive experiments with various types of third rails on the experimental track near Schenectady, the New York Central Railroad adopted for its electrical zone an undercontact third rail differing from others previously in use. This rail, weighing 70 pounds to the yard, has a resistivity between seven and eight times that of copper. The rail is suspended from a curved arm or bracket of iron at standard distances of 11 feet, and held in the supporting space by insulating blocks and a special clip, the blocks being in two pieces 6 inches long and interchangeable. Between the supporting brackets the upper part of the rail is covered by a fiber sheathing or else one of wood. The latter is in three parts, nailed together except at the joints where the third rail is bonded and at the feeder taps, where they are mortised. The rail is not mounted rigidly in these insulators, but is given a little play for expansion and contraction, except at certain points where it is anchored. To secure the same clearance that would be permitted with a top-contact protected type of third rail, such as that used on the Long Island Railroad, the third rail on the New York Central required a location of from $\frac{1}{2}$ inch to $\frac{3}{4}$ inch farther out, but to secure a wider clearance it was decided to place the rails $1\frac{1}{2}$ inches farther from the gauge line, or a total of 29 inches. With a suitable shoe arranged to pass automatically from the undercontact to the top-contact rail, and vice versa, the difference does not prevent an interchange of equipment. The undersurface of the New York Central third rail is $2\frac{1}{4}$ inches above the top of the service rail, while the upper surface of the Long Island third rail is $3\frac{1}{2}$ inches above. This difference can be taken up automatically by the spring pressure due to the shoe sliding on its under or upper surface. The principal reason for adopting the undercontact rail on the New York Central is that it can be more thoroughly protected, and hence is safer than the ordinary type of contact rail, for as there are no projecting live edges or bolts, and no slots between the third rail and its cover, the only possibility of reaching the third rail is from beneath upward. There is also less strain on the insulators, as the pressure from the shoe acts against instead of with gravity, and the rail is more sheltered from the weather and less liable to corrosion, while the contact surface is more thoroughly protected from the deposit of sleet and snow. The construction is self-cleaning, and as there is a greater space than in other types between the lower portion of the third rail and the tie there is less probability of an accumulation of snow, ice, and refuse, and consequently less leakage.

Long Island Railroad.—The electrification of the Long Island Railroad over a large part of its main division has been accompanied by the adoption of third-rail methods. Direct current at a potential of 600 volts is led directly to the third rail from the different substations, and in this way is carried considerable distances, great care being taken to insure the safety of pedestrians. The third rail is laid with its center line at the standard distance of 27 inches from the gauge line of track and with its top $3\frac{1}{2}$ inches above the top of the track rail. This arrangement makes it possible for cars of the Pennsylvania Railroad, the Interborough Rapid Transit system, etc., to use this track, as well as permitting proper clearance for steam equipment, especially the steel hopper cars now in general use. This third rail is laid on sleepers or cross-ties which extend at regular intervals beyond the line of track, and is supported by vitrified-clay insulators. It is covered protectively throughout its length by a wooden sheathing. Brackets of steel attached to the rail are bolted firmly to short wooden uprights outside the rail, and to these by separate bolts is attached a second set of strong brackets supporting a 2-inch plank at a height of about 4 inches above the rail. Wherever the rail comes out in front of stations a special side sheathing is attached to both sides, rendering contact with it practically impossible for passengers. Another feature in connection with the protection of pedestrians at stations is that a running guard similar to the one covering the third rail is carried along the outside edge of the platform, thus preventing the passengers from coming into contact with the collector shoe on the motor cars. At either side of a grade crossing the rail terminates in a broad sloping shoe, called a "nose piece," similar to that placed on switches and crossings in the New York subway or on the Manhattan Elevated, this piece being considerably within the line of the protecting wire fence which now incloses the entire right of way. Each break is spanned by a heavily insulated wire cable passing underground in a concrete duct situated at a depth at which repairs on the crossing are not likely to interfere with it.

West Shore Railroad.—The electrical equipment of the West Shore Railroad, completed in 1907 between Utica and Syracuse and operated by the Oneida Railway, includes a third-rail system adapted to 600 volt direct-current service. For this purpose the third rail used is of the bullhead type, of the same section as that used in the New York City zone of the New York Central Railroad, and adapted for underrunning contact. It weighs 70 pounds per yard, supplied in 33-foot lengths, with such conductivity that no auxiliary feeders are required. The joints are made by ordinary 2-bolt splice bars with bolts $\frac{1}{2}$ inch in diameter. The center line of rail is carried 32 inches outside of the gauge line of track, and its lower surface is $2\frac{1}{4}$ inches above the top of the running rail. This permits the passage of all cars belonging to the New York Central

system and foreign cars, except a very limited type of coal cars with low truss rods. Electric locomotives and motor cars designed for use on the New York Central tracks can also be run over these West Shore tracks without changing the position of the third-rail shoe. At each yard a cast-iron tell-tale "gate" is provided, to ascertain if there is any projection on the tram that would interfere with the third rail.

The third rail is normally located between the tracks on tangents and on the high side of tracks on curves. The supporting brackets on the straight track are located 10 feet apart, or on every fifth tie, and are of tough gray cast iron, of the same curved pattern as in the New York Central construction, for undercontact of the upward pressing shoe. These brackets are held to the tie by 3 lag screws $4\frac{1}{2}$ inches long and $\frac{3}{4}$ inch in diameter. A great deal of study was put on the question of the proper material for the insulating blocks for holding the third rail in the brackets. To secure good insulation, thorough vitrification is necessary, but a perfectly vitrified block is brittle. The problem was thus found to involve formulas for the mixing of clay and porcelain as well as methods of drying and burning the pieces, and the result was the material termed "semiporcelain." Two sizes of blocks are used—one for holding the rail at the inclines where a shallower insulating block is required, and the other at the other points, and each insulator is held to its bracket by a forged steel bolt which passes around the insulator and through a lug on the top of the bracket.

Two types of protective covering are used, namely, a 3-part wooden covering like that on the New York Central, and a single piece of fiber covering, which has been considered preferable. The wooden sheathing is longleaf yellow pine in three parts, top and two bases, held together by $3\frac{1}{2}$ -inch diamond-pointed drive screws, and treated with a coat of ordinary paint applied to the outside of the cover before it is placed over the rail. The indurated fiber sheathing is molded for straight track work in sections $43\frac{1}{2}$ inches long, so that it takes three sections to cover the third rail between two brackets. The joints on straight track are covered by $2\frac{1}{2}$ -inch lap joints of the same material, but at the bonds a wider section of covering is used, permitting the fiber sheathing to cover the bonds and the joints.

Pennsylvania Railroad.—The electric division of the Pennsylvania system from Philadelphia to Atlantic City, known as the West Jersey and Seashore Railroad, with the exception of about 4 miles of main line, is operated with the third rail. The two third rails necessary to the two tracks are on the inside—that is, between the tracks. At stations a fence is placed between the tracks, and wherever there is an opening in the fence to permit passengers to cross from one side to another the third rails are discontinued and connected by underground cable in the same manner as

at all the road crossings. At public streets or roads the side fences that separate the tracks from the abutting property turn inward to the tracks, where they meet a crossing cattle guard. The third rail never continues across a public highway, stopping 5 feet back of the property line, but with contact shoes on all cars a train is able to maintain continuous connection with the source of power. Precautions for protecting passengers are taken at all stations. In front and for a considerable distance beyond each station in both directions the third rail is covered by a guard and directly opposite the platform there is an additional covering on the side. The cars have contact shoes on both sides, and the shoes on the side opposite the third rail are charged as well as those which touch it. When at a station a piece of wood slanting down over the shoe from the side of the truck affords a covering and thus protects the shoe from above, while the station platform itself also projects in such a manner as to cover the shoes. Wherever the electric road parallels public streets, as in Camden, Vineland, and Millville, the third rail gives way to overhead trolley, and when the trolley is in use the contact shoes are not charged at all, but by a switch in the car are disconnected from the circuit. In Atlantic City, from the terminal to the point where the tracks go upon the elevated structure, the third rail is protected all the way.

The third rails employed are of Pennsylvania Railroad standard cross section in lengths of 33 feet weighing 100 pounds per yard, and having a conductivity about equal to that of a copper rod of 12,000 circ. mils. This type of third rail was used in order that it might be interchangeable with the track rail. The insulators carrying the third rail are of reconstructed granite 10 inches in length, $5\frac{1}{2}$ inches broad at the base, with an effective depth from the bottom of the rail to the tie of $3\frac{1}{2}$ inches and are spaced about 8 feet apart. They are held in position by a metal center cup screwed to the long ties by means of lag screws, which method of screwing prevents any strain on the insulator when the ties are depressed by the passage of trains. The third rail is anchored at intervals by means of metal clamps screwed to the underflange of the rail in such a position as to engage the insulators on either side. The top of the third rail is $3\frac{1}{2}$ inches above the top of the track rail and 26 inches distant from the gauge line of the adjacent track rail. The approaches of the third rail are made of cast iron and the rail is bonded with concealed ribbon bonds with soldered copper terminals, compressed into 1-inch drilled holes in the rail, two bonds to a rail joint, each having an area of 15,000 circ. mils. As already noted, jumpers are used at all grade crossings, and wherever continuous third rail is impracticable. At such points the cable is drawn into a black bituminized fiber tube laid in solid concrete protection, and terra-cotta covers are employed to protect the cable terminals. The



PHILADELPHIA ELEVATED AND SUBWAY. PORTION OF ELEVATED THIRD-RAIL TRACK



PHILADELPHIA ELEVATED AND SUBWAY. VIEW OF TRACK IN SUBWAY TUNNEL

third rails are arranged in such a manner that each track may be isolated from the other, but normally the third rails are electrically connected midway between the substations through a combined switch and fuse box, thus obtaining the combined conductivity of the third rails. There are also section insulators opposite each substation, so that in the event of an accident on any part of the system only a short section of third rail will be dead. A notable point is found in the fact that the third-rail system was adopted for both terminal stations, where there were a number of platforms, and the preference was made on the score of fewer difficulties being encountered in its installation than would have been the case in that of an overhead trolley.

Third-rail conductivity.—The conductivity of the third rail depends upon its composition, and special formulas have been used with the object of increasing conductivity. The specific resistance in steel is proportional to the percentage of manganese and copper which it contains. The standard track rail contains from four-tenths of 1 per cent to five-tenths of 1 per cent carbon and as high as seven-tenths of 1 per cent manganese, giving it a specific resistance from ten to twelve times that of pure copper. The following statement shows the composition of special third rails, from which it will be seen that the ratio of resistance of the rail compared with copper has been greatly reduced so as not to be more than eight times as great.

Composition of special third rails.¹

MATERIAL.	Manhattan Railway.	New York Subway.	Albany and Hudson.
PERCENTAGE.			
Carbon.....	0.073	0.10	0.000
Manganese.....	0.340	0.40	0.440
Sulphur.....	0.073	0.05	0.080
Phosphorus.....	0.006	0.10	0.088
Ratio of resistance compared to copper.....	7.700	8.00	7.250

¹ Standard Handbook for Electrical Engineers.

Contact shoes.—The question of third-rail maintenance depends to some extent not only upon the composition of the rail but upon the kind of shoe used to make contact with it. As a rule, the rail shows a very small amount of wear even with heavy service. Tests taken to ascertain this wear show that the passage of the 2,000,000 third-rail shoes over a given special soft rail caused the wearing away of only 0.006 inch. As already noted, third-rail shoes are of two general types, those making downward contact and those making upward contact. The current capacity of the shoe, especially at high speeds, is much in excess of any form of overhead trolley or sliding current collector, and tests indicate that the electrical energy that can be collected from a single shoe at a speed of 35 miles per hour is 2,000 amperes and from the same shoe at a speed of 70 miles per hour 500 amperes. The cast-iron shoes generally used are easily and cheaply

renewable, on account of the large wearing surface exposed to contact with the rail; and the life of one of them is in excess of 25,000 miles. Some interesting data were collected by the Interborough Rapid Transit Company for the year ending December 31, 1907, as to results with the two types of shoes employed on the subway and the elevated sections of the system. Results were as follows:

	Subway	Elevated.
Average life in contact-shoe miles.....	45,720	50,008
Average cost per 1,000 contact-shoe miles.....	\$0.02322	\$0.01241

New York Elevated third rail.—The third rail on the elevated division of the Interborough Rapid Transit Company is of the double-link suspended-plane over-running gravity type, which has been in successful use since 1901. The subway shoe is of the two-pair type for running over the head of the hooded contact rail in the underground section of the subway and over the head of the contact rail on the viaduct.

Fuses.—The Interborough company makes a practice of inspecting closely all contact shoes to the extent of the gauging of their height, trying all the bolts, and testing the inclosed shoe fuses. Its type of third-rail shoe fuse is another example of the development of a special device to meet subway conditions. It was essential that such fuses should be inclosed and should be capable of opening and terminating short circuits without any disturbance or any danger of throwing passengers into a panic by noise or flame. To meet these conditions a type of cylinder-link fuse was developed in which a maximum radiating surface is secured with a minimum volume of metal for any given current volume. This fusible link is inclosed in a fiber tube surrounded by porous filling, as in the ordinary inclosed fuse construction. It was demonstrated that fuses constructed with this form of fusible link properly inclosed would operate without disturbance even in handling direct short circuits from the third rail to the structure, where every other type of link inclosed in casing of relatively the same dimensions would explode with great violence. Some idea of the current to be handled by such fuses may be formed from the fact that rushes of current through the fuse in excess of 18,000 amperes were observed during the tests, while the potential drop of the circuit was practically negligible, the potential on the line being approximately 625 volts.

When it became necessary to provide equipment for the subway division, tests were conducted on fuses of larger capacity up to 600 and 800 amperes continuous load. The cylinder link was adopted also for this purpose. The first equipment for the subway called for fuses of 400-ampere capacity. After a year, however, it was found that the tremendously heavy traffic and the rapid acceleration of trains frequently blew the fuses when there was no trouble on

the line. The equipment over the entire system was therefore changed to fuses of about 650-ampere capacity. Originally the fuses were mounted on the beam supporting the third-rail shoe. It was found, however, that the vibration to which this beam was subject had a detrimental effect upon the fuses, and the result was that the shoe fuses are now mounted on a spring-supported block carried on the shoe beam, the springs consisting of two single-leaf semielliptics.

VII.

SUBWAYS AND TUNNEL SYSTEMS.

Subways in New York City.—One of the most interesting and important developments of electric street-railway traffic since the preparation and publication of the last report of 1902 has been the development of the subway systems. New York City has been the center of this important departure from the previous practice of building railways either on the surface of the streets or on elevated tracks. At the time of the last report the Manhattan Elevated Railway in New York City was in process of changing from operation by steam to that by electricity. At the present time the results with underground traffic have already been such as to render difficult, if not impossible, the construction of any more elevated railways within the limits of Greater New York.

The Interborough Rapid Transit subway system went into operation as recently as October 27, 1904, but its traffic has grown to such an extent that during the year under report no fewer than 166,363,611 fare passengers were carried. At present a number of schemes for the continuation of the present system and the creation of others are under contemplation, while the Interborough system has been pushed northward beyond the confines of Manhattan Island, and has been carried under the East River into the very heart of the Borough of Brooklyn. In addition to this the Hudson subway system has been carried under the North River to the main-line terminal of the Delaware and Lackawanna Railroad system, and other tunnels have been constructed for the Pennsylvania Railroad traffic under the Hudson between the Jersey shore and Manhattan Island, and eastward again from Manhattan Island across to Long Island. These projects had not yet been put in operation at the time of this report.

The creation of the Interborough underground system was a work of many years, and the completion of the subway marked the solution of a problem which, as has been well said, "for over thirty years baffled the earnest desires of the people of New York City, in spite of the best efforts of many of its foremost citizens." As early as 1868 legislation was enacted making possible the construction of an underground railway from the city hall to the Harlem River, and a company was formed which, like numerous successors, struggled

without result with the various difficulties encountered, and met only failure and loss.

In 1891 the city itself secured the passage of a rapid-transit act under which the Interborough subway has been built, but which as originally passed did not provide for municipal ownership. It was not before 1900 that under the rapid-transit act then in force, a board was created to prepare general plans and to submit the question of municipal ownership to the electorate of the city. The city was authorized in case of a favorable vote to issue bonds not to exceed \$50,000,000, at 3½ per cent interest, for the construction of the system, with \$5,000,000 additional for private property rights along the route. As soon as the public had declared itself in favor of such a plan steps were taken by the rapid-transit commission to secure a contract for the construction of the system, the amount to be paid by the city for the construction being \$35,000,000, and an additional sum of \$2,750,000 for terminals, station sites, etc., leaving about \$15,000,000 for equipment. The lease from the city to the contractors who agreed to operate the system was for a term of fifty years at an amount equal to the annual interest upon the bonds issued for the construction and 1 per cent additional, the 1 per cent during the first ten years to be partly contingent upon the earnings. It was agreed that the construction of the initial system should be completed in four and one-half years. This result was not reached without a great deal of trouble and anxiety, on account of financial difficulties. In the spring of 1902 the Interborough Rapid Transit Company was formed, as the operating and corporate representative of the Belmont interests, to which Mr. McDonald, the contractor, assigned the lease or operating part of his contract with the city. Incidentally it may be said that, in order to secure the advantages of harmony and union between the traction interests of the city, a further step was taken, in January, 1903, by which the Interborough acquired the Manhattan Elevated Railway system by lease for nine hundred and ninety-nine years.

The subway route as adopted finally reached from the terminal near the city hall to Kingsbridge on the northwest and to Bronx Park on the northeast, while subsequently by adopting the Brooklyn extension the line was carried down Broadway to the southern tip of the island, and thence under the East River to the Flatbush avenue terminal, in Brooklyn, of the Long Island Railroad system. As at present constructed the road may be considered a straight stem from the heart of Brooklyn through to Kingsbridge, with a fork or spur beginning at Central Park and extending northward to Bronx Park. Fully 75 per cent of the road has been built beneath the surface; the northern portion, however, comprises large and important stretches of viaduct and open cut.

Types of New York construction.—Five types of construction were employed in building the road, namely,



PHILADELPHIA ELEVATED AND SUBWAY - INCLINE BETWEEN ELEVATED TRACK AND SUBWAY



PHILADELPHIA ELEVATED AND SUBWAY—VIEW OF SUBWAY STATION.

the typical subway near the surface, with flat roof supported between tracks by steel bulk angle columns and I beams for the ceiling and sides; flat-roof construction of reenforced concrete supported between the tracks by steel columns; concrete-lined tunnel; elevated track on steel viaduct; and cast-iron tubes under the Harlem and East rivers. A notable feature of the whole system is the use of four tracks, the two outer for local or way traffic and the two inner for express traffic, with island platforms at the express stations so that passengers can change readily from train to train, these island express platforms being connected with the local platforms by overhead bridges within the subway or by short transverse tunnels under the track.

The motive power of the entire system is electrical, current being derived by the motors from a hooded third rail over which the contact shoes slide. The standard type of car employed has a length of 51 feet and a seating capacity of 52 passengers, with inclosed vestibuled platforms and sliding doors at the ends instead of the usual gates. Modifications of this type have been suggested and tried, but without material change up to date. A large number of the earlier cars were of wooden framework around the steel framing, but the tendency has been steadily toward the substitution of all-steel cars. The rolling stock of the road comprises motor cars which carry two motors, one geared to each axle, and trail cars that carry no motive power. An express train of eight cars, to conform to the schedule speed adopted, requires a normal power of motors on the train of 2,000 horsepower, with an average accelerating current at 600 volts of 325 amperes in starting from a station stop. All the car-controlling devices are placed outside the car body in a special insulated steel compartment, so as to lessen any possibility of accident to the public from contact, etc. Cars are lighted electrically and a separate independent system is operated for the lighting of the subway and stations, so that the subway shall not be left in darkness in case of any accident to the motive-power service to the cars. A very elaborate system of signals embodying the highest development of the automatic system is also used.

The electrical energy for the whole system is furnished from one of the largest power houses in the world, on the Hudson River at the foot of Fifty-ninth street, whence the current is distributed to a number of substations in different parts of the city, where the current of 11,000 volts from the power house is manipulated as direct current to the motors at 500 volts.

It may be noted that the length of road from Brooklyn Bridge by subway to One hundred and eightieth street, New York City, is 13.46 miles, and from Brooklyn Bridge to Two hundred and forty-second street, New York City, 14.17 miles, this being a common length of journey, while the longest continuous ride is from Atlantic avenue, in Brooklyn, to Two hundred and forty-second street, New York City, a distance of 17.5 miles,

one of the longest hauls for passenger traffic in the world for the rate of 5 cents. In discussing this subject and the various methods by which the subway might be improved in capacity and convenience, Mr. Bion J. Arnold, special consulting engineer to the Public Service Commission of the first district of the state of New York, says:

The subway system has now been in operation long enough to demonstrate that, in order to make this method of transportation self-sustaining upon the present flat-fare basis, the income should average at least 1 cent per passenger mile. *In other words, with a uniform fare of 5 cents the average length of ride should not exceed 5 miles.*

The analysis resulting from the study of the passenger movement on the individual trains proves that the average length of travel on the express trains is now $5\frac{1}{2}$ miles, or slightly above the critical average, whereas the average length of ride on the local trains is but 2 miles. It is apparent that as the subway is extended and the outlying districts become more thickly populated the average length of the long-haul rides will become greater, and that unless the fare for these longer rides is increased, it will be necessary to cultivate the short-haul business and increase the profit from that source if the present 5-cent flat fare is to be retained.

Hudson River tunnel system.—As far back as 1879 a brick tunnel was pushed under the Hudson River by Mr. D. C. Haskins, reaching a distance of 1,200 feet; ten years later it was carried forward 1,800 additional feet; and it was completed in 1907 for the Hudson and Manhattan Railroad Company, whose system went into operation in February of 1908, so that the transportation figures are not included in the statistics of this report. It is proper, however, to note the details of a system built in the census period 1902 to 1907. The part of the route thus open consists of a twin-tube tunnel extending from Hoboken, N. J., to Twenty-third street, New York City, and it is proposed to carry it through to Herald Square and Thirty-fourth street, and eventually to the Grand Central Depot on Forty-second street. The tunnels under the river are made of steel rings, bolted together and set in place, as the boring shield, working in compressed air, opened the way for them. In most places the steel rings have a coating of concrete so that the interior of the tunnel is smooth. Each tube has an interior diameter of 16 feet 3 inches, and the cars are made to conform in general shape to the bore of the tunnel. The tubes are entirely separate from each other, in fact about 30 feet apart for most of the distance under the river to the Hoboken terminal, and are connected with the Delaware, Lackawanna and Western Railroad, so that passengers from either station may reach the tunnel cars or leave them directly without emerging to the open air. Eight-car trains, electrically propelled, are used in the tunnels, with third-rail direct-current system of transmission similar to that employed in the New York City subway. The cars have large sliding doors in the middle as well as at either end, and the platforms are so arranged at the terminal stations that passengers enter and leave the cars at the same

time. Another unusual feature is that the cars have upright stanchions as well as straps for the use of passengers standing. The doors are operated by compressed air, and no signal bells are used.

These cars are absolutely fireproof, while at the same time the weight has been kept as low as is consistent with safety. To secure fireproof qualities unusual precautions were taken. The entire car body, including door and roof-head lining, is made of steel; the floor is of monolith cement laid on steel with $\frac{1}{4}$ -inch finish of carborundum cement used as a substitute for maple strips; and the seat backs and cushions are covered with a metal fabric instead of rattan. All conduit wires are covered with asbestos and are placed in iron conduit pipes; the magnet coils of the control equipment are insulated with mica and asbestos instead of the usual covering of cotton tape; and the contact shoes, which are of the hinged type, have directly over each one of them an inclosed fuse, protected by an asbestos-lined wooden box, the base of which fuse is mounted on springs in order to reduce the vibration, prolong the life of the link, and insure its more efficient operation.

When the last door of the train is securely closed the motorman receives an electric flash signal and starts the train. The automatic adjustment is such that the signal to start can not be given so long as any door in the train is open even the fractional part of an inch. The air in these deep tunnels under the bed of the river is good, as the ventilation is automatic, each train acting as a piston to force out the air ahead of it and to draw a fresh supply from the surface as it proceeds.

The Hudson and Manhattan Railroad Company, in addition to the installation of a thoroughly modern block-signal system, has installed in its tunnels an emergency signaling system with provision for cutting off power from the contact rail, similar to the method employed by the Interborough Rapid Transit Company in the New York City subway. It consists of the regular fire-alarm equipment with relay connections by which the direct-current circuit breakers in the substation are tripped by the same electric impulses that give the alarm. In case of an accident in one of the tubes a train hand, by breaking the glass front of the emergency box and pulling the hook, not only cuts off power from the third rail, but at the same time reports the location of the trouble by means of annunciator gongs in the substations, from which power is supplied to the section, as well as in the train dispatcher's offices, and in the office of the general superintendent. Further, to reduce risk from fire and smoke and to insure an absolute minimum of danger to passengers, the Hudson and Manhattan Railroad Company has used in the construction of the guard or hood over the third rail, Jarrah wood, specially imported from Australia. The tests made by the engineers of the

system show that this wood possesses very remarkable fire-resisting qualities, admirably adapting it to such a purpose.

There are four sections proposed of this Hudson River tunnel system, of which section 1 just described is known as the north tunnel. Section 2 extends from Cortlandt street, New York City, to Jersey City; section 3 is a transverse tunnel, running along the Jersey shore of the Hudson River for a mile and a quarter to connect the terminal in Jersey City with that in Hoboken; and section 4 is a branch line running from Jersey City to New York City. At the Cortlandt-Fulton street terminal of the system in New York a huge 22-story steel structure has been erected, known as the Hudson Terminal Building. From the train platforms in this building, two stories below the street level, the passengers may proceed by underground and underriver routes to any part of Greater New York. The cost of the system when fully completed is estimated at about \$70,000,000.

Subways under East River, New York.—A third subway system is that which has been built across the East River from the Grand Central Station to Long Island City, following the line of Forty-second street. This is a twin-tube tunnel, of which the tubes are similar in dimensions and general construction to those which are now in use as part of the Interborough system from the Battery at the southern extremity of Manhattan Island across to Brooklyn. This tunnel was built under an old franchise granted many years ago, but has not yet gone into use, although it has been offered to the city at a price of \$7,000,000.

Independent of all this subway work, and also intended for electrical operation, is the tunnel system of the Pennsylvania Railroad. Hitherto that system has ended at the Atlantic seaboard with a terminal on the New Jersey shore, but is now completing a huge terminal depot in the heart of Manhattan Island near Herald Square. From the New Jersey shore to the New York shore two single-track tubes have been driven, so large that they can carry cars of the heaviest trains, and having an internal diameter of 23 feet, with heavy steel shell and deep flanges, and an interior lining of 2 feet of concrete. The concrete is carried up at the sides to the level of the window sills of the cars, so that a broad pathway which the passengers can traverse is afforded for use in case of a sudden interruption of the train service.

Boston subway system. The Boston subway system, which has been in operation for some years, has recently had an addition in the Washington Street subway, built by the Boston Rapid Transit Commission and leased to the Boston Elevated Railway for twenty-five years. This new tunnel runs under the heart of the business district of Boston, and is a little more than a mile in length, being 5,676 feet between portals. The cost, including the approaches and the equipment of stations, was something over



PHILADELPHIA ELEVATED AND SUBWAY—TICKET OFFICE AND ENTRANCE TO SUBWAY.



PHILADELPHIA ELEVATED AND SUBWAY—TICKET OFFICE AND ENTRANCE TO DEPARTMENT STORE.

\$10,000,000. It is estimated that when in full operation it will increase the capacity of the Boston Elevated Railway Company system in the downtown district about 175 per cent. The Tremont Street subway was the first rapid-transit tunnel built in the United States, and this latest addition benefits by the experience derived from that and similar work in other parts of the country. The construction of the tunnel varies in different places, being adapted to the constantly changing conditions of the streets and buildings above it, although it is a great improvement over the Tremont Street subway in that it is almost straight in its alignment. In some parts vaulted concrete roofs are used, held together by tie-rods, and in other places the roof is spanned by steel girders with concrete roof arches between. There are seven stations along the tunnel, four being for southbound trains only, three for northbound trains, while the State Street Station serves as a transfer point for passengers between northbound trains and trains in the East Boston tunnel. The platforms of all these stations are 350 feet long, to permit the use of 8-car trains of the type of rolling stock in use on the elevated structures. At the large State Street Station, besides the stairways, there are five escalators for the accommodation of the public. Lighting is done by incandescent lamps, with three independent sources of supply. To keep the tunnel free from water, pumping chambers are installed at three different points. In each chamber are two pumps—a small one for ordinary conditions of the most severe weather and a larger one for use in case of extraordinary circumstances, the larger pump cutting in automatically should the water come in too rapidly for the smaller pump to keep it down. There are also four fan chambers situated along the length of the tunnel, each with two fans, capable of exhausting 25,000 cubic feet of air per minute. The foul air is drawn out of the tunnel between stations through concrete ducts in the ceilings, and the fresh air enters at the several passenger entrances, insuring a pure supply at all times.

All the steel construction throughout the tunnel has been protected from rust and fire by concrete; all the woodwork is encased in sheet bronze; all destination and direction signs are made of enameled metal; and the ticket offices of sheet copper. In other words, a minimum of wood is used. Provision also is made for public and company telephone booths constructed of fire-proof materials.

Philadelphia subways and elevated.—One of the most important additions to street-railway systems of this character is the Market Street Elevated Passenger Railway, installed by the Philadelphia Rapid Transit Company, under franchises dating back to 1901 and 1902. This new system comprises both subway and elevated lines, extending from a terminal at Sixty-ninth street west of the city boundary in Delaware

County eastward to the ferries on the Delaware River. At Sixty-ninth street a passenger station connects the Market Street line with other electric-railway systems, reaching rural portions of Delaware, Montgomery, and Chester counties. The power house, repair shop, etc., are also located at this point. The first section of the line runs on private property, with retaining walls to the western city line, and thence by 2-track elevated structure in the center of Market street to the new Schuylkill River Bridge built by the company. This bridge is located 100 feet north of the center line of Market street, and is reached by reverse curves and an incline with the subway, running east under the bed of Market street to the city hall and the Delaware River. The bridge and the subway, as far as the Philadelphia city hall, have four tracks—the two inner for trains operated on the elevated railway and the two outer for surface cars from West Philadelphia. At the city hall the tracks diverge, the two eastbound and the two westbound passing to the south and the north of the city hall, respectively. The tracks for the surface cars terminate in a loop on the east side of the city hall, passing under the through tracks, so that all these cars from West Philadelphia return westward after passing around the city hall. The two tracks for the elevated trains continue on the East Market Street subway to Front street, thence north by curve and an incline on private property between Front and Water streets, and by elevated railway on Arch street to Delaware avenue, proceeding south on that avenue to the eastern terminus at South street. The Delaware River ferries at Market, Chestnut, and South streets have stations on the Delaware Avenue elevated.

The subway itself is 26 feet 6 inches wide inside, and at the highest point 14 feet 5 inches from the base of the rail to the roof. A third rail of the underrunning-contact type supplies electrical energy to the elevated and subway trains, while the surface-line cars that enter the subway are operated by overhead trolley. There are 7.41 miles of structure and 17.2 miles of single track. The stations, of which there are 18, including the eastern and western terminals, are 350 feet long in the subway (except one, 364 feet) and provide for 8-car trains. As in New York City, connections have been made at various points with department stores and other buildings, and all entrances and exits of this kind are open day and night. The run through from Sixty-ninth street to Second street takes twenty-seven minutes eastward, while westward the heavy grade adds one minute. Between the city hall and Second street the run through is seven minutes, or less than half the best time possible by the surface cars.

Electrical energy is supplied from the power house to the tracks through two substations conveniently located. The subway is profusely lighted with 16-candlepower incandescent lamps, affixed generally

every 30 feet, but every 20 feet around the city hall loop, and every 25 feet in the 4-track tunnel west of city hall. The station platforms are supplied with lights on the basis of 32 to 38 square feet per lamp, and the lighting is done by 25-cycle alternating current for regular service and direct current at 550 volts for emergency service.

The elevated-subway service requires from 80 to 100 cars. In the slack hours 14 trains of 2 cars each are in use, while during the rush hours 14 trains of 5 cars each are operated. A steel-framed car of the design developed and used by the Boston Elevated Railway has been adopted, with slight modifications. Each car has entrances at the middle as well as at the ends. Woodwork is used only for the interior finish, which is of mahogany. Owing to the requirements of the ordinance that stations should not average more than one-half mile apart, it was not deemed feasible to attempt a greater schedule speed than 15 to 20 miles per hour, this being based also on station stops not to exceed twenty seconds each. It was further deemed advisable by experts, in view of the heavy grades, to make each car a motor car, instead of using trailers, so that on one truck of each car are mounted two motors rated at 125 horsepower each. The multiple-unit system of car control is used, whereby the whole train is controlled by the motorman on the front platform of the first car. The controller is so arranged that it returns automatically to the dead point should the motorman for any reason take his hand from the handle. The over-all height of the car, that is, from the top of the rail to the top of the roof, is 13 feet, giving room for the clearance between the top of the car and the subway roof.

An elaborate system of signals has been installed, and the road is also protected and operated with the aid of a complete telephone system, a telephone being in each ticket booth as well as at intervals all along the line.

An interesting feature of the system is the Schuylkill River Bridge, finished in 1905. This bridge, which was considered more desirable for the subway than a tunnel, is 576 feet long, and carries the 4 tracks with a clearance above the mean high-water line of 26 feet 4 inches.

The complete line was thrown open to public travel on August 7, 1908, although a portion of the system had been open for some months, as many as 1,286,161 passengers, paying or transferred, having been carried in December, 1907. Traffic practically doubled in 1908, reaching a total of 2,588,502 passengers in December of that year. The cost of construction of the subway and elevated line is reported as \$17,708,250, inclusive of cars, car equipment, power house, signals, and everything complete.

VIII.

CAR CONSTRUCTION AND LATEST TYPES.

General development.—The general statistics as to the number and kind of cars in use are given in Table 38, from which it appears that a total of 83,641 cars were in use in 1907 as compared with 66,784 in 1902, a gain of 25.2 per cent for the period. The table brings out the interesting fact that the passenger cars increased by only 9,726 during the period, or only 16.1 per cent, while other styles gained notably. The increase in combination passenger, express, and freight or mail cars was from 239 to 567, an increase of 137.2 per cent, and the effect of interurban development was indicated in the enormous increase in express, freight, and mail cars from 1,114 to 5,669, a gain of 408.9 per cent. These various types of cars, as well as others of the work and service class, are discussed in the statistical portion of the text with relation to Tables 38, 39, and particularly Table 40, which shows the distribution by states and geographic divisions.

The development of the street car was very fully discussed in the report of 1902, in which the construction and engineering details of the various types of cars then in use were explained. The chief feature of the intervening period has been the great improvement of the convertible and semiconvertible types of passenger cars, the introduction of a type strictly new so far as relates to the collection of fares, and the greater resort to steel as a material of construction. The use of the convertible and semiconvertible car has become essentially a measure of economy for modern street-railway systems, and commends itself for many important economic and managerial reasons. One of the problems of large street-railway systems is the provision of adequate cars for the service, with car barns in which to store them during the periods of idleness. If open or closed cars only were employed there would not only be no necessity of providing an extra set of cars with all the incidental items of maintenance and repair, but also no need of a large additional amount of car-barn space involving both additional labor and insurance and the acquisition of costly property at central points for car circulation.

Convertibles and semiconvertibles.—Between convertible and semiconvertible cars there is considerable difference. In the convertible type of car the lower panels as well as the upper sashes can be raised in the roof pockets, or else the sides can be detached and stored so that when the car is made fully open it becomes like cars of the regulation open type with side entrances, approached from the running boards. In the semiconvertible car, however, the lower panels are fixed; the sides of the car remain



STEEL CAR, BROOKLYN ELEVATED, NEW YORK.



INTERIOR OF STEEL CAR BROOKLYN ELEVATED NEW YORK.

intact and are not disturbed; but the window space may be entirely clear of the sashes when desired. The car may be thus half open, but the extent of the openings is limited. In connection with semiconvertible cars three methods are employed for the disposal of windows. In one type the windows are entirely removed at the beginning of summer and replaced as winter comes on. This of course necessitates much handling and provision for storage in the car barns. In another type the windows are dropped into wall pockets in the car, and in a third they are stored in roof pockets when not in use. The third method, it is claimed, is preferable, as the roof pockets do not occupy space needed for other purposes and maximum interior width of car is obtained; the window sills may be as low as desired; a single movement only is necessary in handling the sashes, and the wall pocket, accumulating dust and rubbish, is dispensed with. In the second type, on the other hand, it is somewhat difficult to raise sashes out of pockets within the panels, while such pockets place the window sill at an undue height because of the necessity for accommodating the full sash there. In summer time, however, a low sill is desirable, which, in some instances, is secured by dropping one section of the sash into a wall pocket and a small upper section into a pocket behind the designating letter board.

The window system of the semiconvertible car utilizing roof pockets is designed for both curved and straight sided construction. It consists simply of a pair of sashes which are guided into the pockets in the side roofs by means of trunnions moving in a metal runway. The bolts of the window locks form the lower trunnions of the larger sash and the upper trunnions of this sash are fastened upon plates screwed firmly to the sash frame. In its lowered position the larger sash is held tightly against the upper by sash springs which are compressed by parting strips and press the upper trunnion of the sash into notches formed in the runway. On being raised the trunnion slips easily out of the notches and the runway keeps the sash a little apart, so that there is no friction, except that given for short distances by the light sash springs against the parting strips. A slight turn in the runway just as the upper trunnion engages the hook at the top of the upper sash brings both sashes together. From this point upward the sash runways are double the width of those in the posts, as the trunnions which are cast upon the hooks of the upper sash also move in the same runway. The purpose of the trunnion in the upper sash is simply to drop into notches when this sash is lowered and thus hold it firmly and prevent rattling. The curve of the runway in the pocket locks the hooks of the upper sash to the trunnion of the lower, so that the sash can not become disconnected in the pocket. The window locks used with this system have a steel core in the brass bolt which prevents its bending if the

sash is dropped from one stop to another. Besides the stops which hold the lock bolts when the sashes are in the pocket, there are five stops to each runway, the upper part of each stop having ample inclination or slope, so that even if the sashes are carelessly dropped the bolts can not fail to catch.

Steps for cars.—As will be noted from the table, a large number of distinct or separate open and closed cars are still in use, and in many cities, such as New York City, the difference has been maintained. In such cities the gross number of cars in use would have been greatly increased above the figures shown by the table but for the tendency, which has been strongly manifested, toward increasing the length and carrying capacity of cars. This increase in the size of the cars has necessitated heavier equipment of motive power, and these larger motors in turn have raised the cars to such an extent as to make the single step of undue height from the ground and inconvenient for people of short stature. This high step has resulted in many accidents and made the car slower than formerly in taking on and letting off passengers. It is said, however, to be impossible to construct an open car for double trucks with 33-inch wheels and carrying 4 motors, with the top of the floor less than 36½ inches from the rails. To divide this height by one step by making the distance between rail and step 19½ inches, and that between the step and the car floor 17 inches, is obviously awkward, and the difficulty has led to methods for double-step construction for open cars. In one leading open type the object has been accomplished by substituting for the usual thick timber sills Z-irons, the middle web of which forms the upper step. In this manner the Z-iron does for the open cars exactly what the drop platform does for the closed cars in reducing the height of the step; the lower step or running board is only 16 inches above the rail, from the board to sill step is 13 inches, and from the sill step to the car floor 7½ inches. These heights make it unnecessary for passengers to use the side handles, except to steady themselves and give them a short easy flight of steps which they can descend without stopping to swing around. Iron plate with corrugated surface forms the treads of the sill steps, preventing slipping in wet weather. They project over the web slightly, giving the step a width of 7 inches.

Types of interurban cars.—The development of interurban railroads has brought out many different types of large cars which serve for operation within the city limits as well as outside. The popularity of the larger types of cars, such as those 55 or 60 feet long, is shown in the fact that out of 17 roads examined in Ohio during 1906, 13 had cars 50 feet in length or over; 3 had cars at least 60 feet long; and on 9 of the roads 3-compartment cars were used for local as well as limited service. It will be readily understood that such large cars weigh from 40 to 60 tons. On several roads the smaller cars were kept for the

local runs and the longer cars for the "limited" runs, i. e., runs on which are made a definite, limited number of stops. It has been the aim of traction managers generally to secure as wide a car as possible, in order to furnish comfortable seats on each side, wide enough for two passengers; but the developments in this direction are frequently thwarted by local conditions. The Toledo, Port Clinton and Lakeside Railway Company entering Toledo, Ohio, has cars 9 feet wide, but 2 of them can not pass on the same street. The Cincinnati, Hamilton and Dayton Traction Company has many "devil strips" only $3\frac{1}{2}$ feet wide between the tracks, with the result that the cars of the Interurban Railway and Terminal Company and the Cincinnati, Milford and Loveland Traction Company are only 8 feet 1 inch and 8 feet 3 inches wide, respectively. Cars built for the limited service on the Fort Wayne, Van Wert, Lima and Toledo lines are not less than 62 feet over all, and weigh 45 tons.

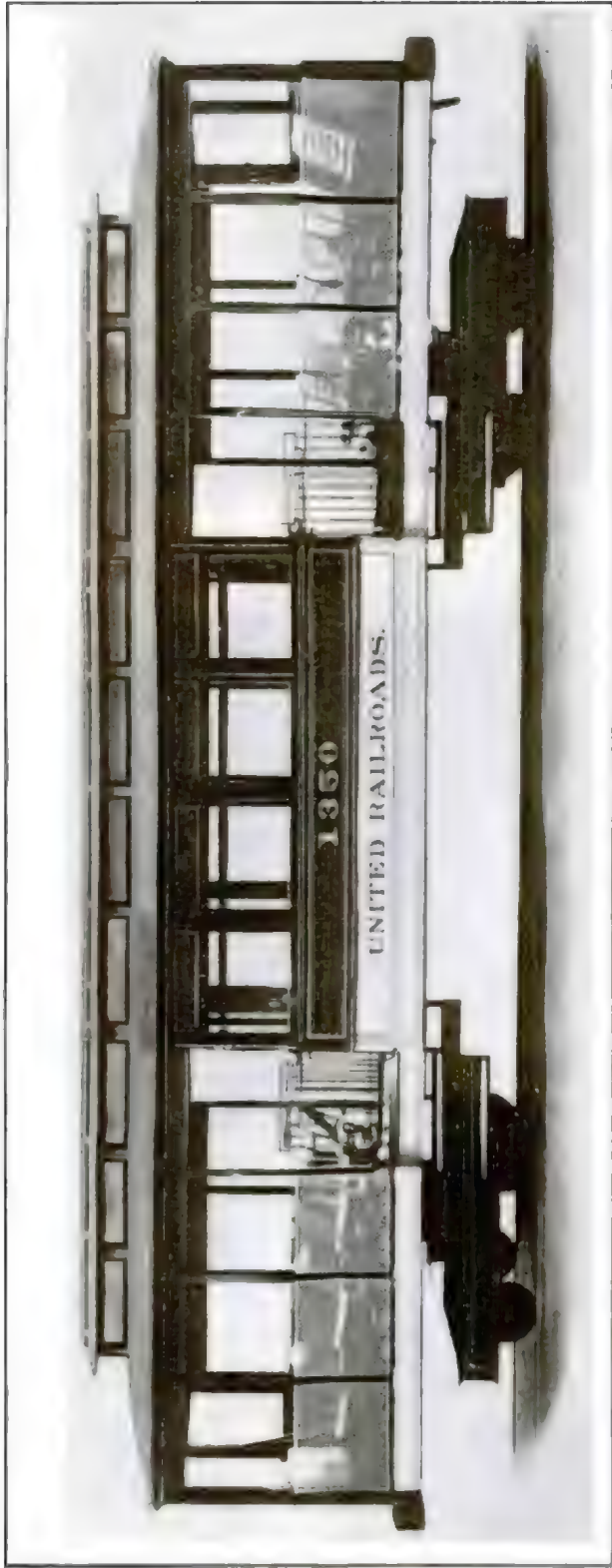
With such cars the question of steps has again involved various problems. It has been necessary to design steps that will not extend too far out beyond the side of the car and will at the same time keep the rear platform wide enough for safety. The use of heavier equipment has often rendered desirable a third step, especially in country sections where the tracks are elevated. The Dayton and Troy Electric Railway Company (Ohio) has equipped all its cars with a step which is dropped downward at each stopping point; and the Stark Electric Railroad Company (Ohio) goes so far as to provide each car with a small stool or box which the conductor is supposed to place on the ground at each stop, as is done by a Pullman porter in heavy steam-railroad work. This, however, is an innovation which is not likely to go far in electric railways. A tendency has been shown to build the floors of platforms of cars at the same level as the car floors, so that the sills can run through from bumper to bumper. In many instances the rear platform alone is dropped, usually about 6 inches. The bottom of the sills of the car with a dropped platform is usually from 40 inches to 43 inches above the rail. This makes necessary only two steps of from 11 inches to 13 inches, the last step being about 17 inches above the rail. Where the platform is on a level with the car floor, however, three steps are often used. The platforms are usually about five feet long. On some of the older cars the rear platforms are open, but closed vestibules are preferred, and the newer cars have been equipped with them. The rear platforms of the interurban cars of the Detroit United Railway are of the open type, similar to the open platforms of the regular city cars, and have a safety gate on one side.

All the passenger cars on the interurban roads inspected in Indiana and Michigan during 1906-7 had two compartments and some had three. The limited

cars of the Indiana Union Traction Company and the regular cars of the Detroit, Ypsilanti, Ann Arbor and Jackson Railway (Mich.) (now the Detroit, Jackson and Chicago Railway) were the only ones without baggage compartments, and in general construction, with one exception, all the cars were patterned after steam coaches, with steam-coach type of hood and side windows to raise instead of drop into wall pockets. The exception was the interurban car of the Terre Haute Traction and Light Company (lessor of the Terre Haute, Indianapolis and Eastern Traction Company) (Ind.), which resembled the usual heavy type of car for city service. The roof was of the monitor type, the side windows dropped, the letter board was absent, and the ceiling lower than usual on interurban cars. These cars are intended for double-end operation, while the interurban cars of all the other systems inspected are designed to be operated in one direction only.

Weight of cars.—When the interurban cars were first developed the managers were not particularly in favor of carrying baggage because of the delay and space consumed. It was found, however, that on the interurban limited cars, offering quick passage from town to town, a great deal of the passenger traffic was made up of traveling salesmen, to whom such service would be of no use unless they could take their trunks and sample cases with them. Hence the baggage compartment became necessary, and at the same time the smoking public demanded accommodation. Out of these necessities arose the development of the 3-compartment car which is now general, owing to the desire not to reduce more than possible the seating or passenger-carrying capacity. The heaviest cars thus developed reach a weight on the Indianapolis and Northwestern Traction Company (lessor of the Terre Haute, Indianapolis and Eastern Traction Company) (Ind.) of 82,000 pounds, and on the Fort Wayne and Wabash Valley Traction Company (Ind.) of 80,000 pounds. The weight appears to be about equally divided between the body and the trucks with their equipment. Thus, of the total 76,000 pounds for the cars of the Indiana Union Traction Company, the body weighs 38,000 pounds.

Car seats.—On a large number of interurban roads, as, for example, in Ohio and adjacent states, the seats are made stationary, this arrangement, of course, being possible only with single-end cars. The cane seat is preferred on many of the lines on account of its cleanliness and durability, and is largely adopted for local service, while high-back, roll-top, plush-upholstered seats are preferred by a number of roads for long-distance service. Several roads use plush seats in the main passenger compartment and leather seats in the smoking room—leather or pantasote being used in many of the later smoking compartments. Chair seats, which were used at one time by a number of roads on the limited service, have been given up on account



STEEL CAR, SAN FRANCISCO, CAL.



ENCLOSED STEEL CAR NEW YORK CITY, N. Y.

of the reduction in seating capacity. Wicker chairs are frequently found in the smoking rooms of limited cars. The passenger compartments on the roads in Indiana and Michigan are often equipped with reversible or walk-over seats.

Trucks and wheel base.—As already noted, the weight of the cars has greatly increased and with it the weight of the trucks, so that each truck exclusive of the motors now weighs from 10,000 to 12,000 pounds. The interurban cars on all the roads examined in Indiana and Michigan in 1906 were mounted on trucks of the M. C. B. type, and the latest cars of the Fort Wayne, Van Wert, and Lima Traction Company (Ohio) (lessor of Ohio Electric Railway Company), the Lake Shore Electric Railway Company, and the Cleveland and Southwestern Traction Company (now the Cleveland, Southwestern and Columbus Railway Company) use the heaviest type of M. C. B. truck with 7-foot wheel base. Both forward and rear trucks are usually of the same type, each of the four axles carrying a motor. With the increase in the weight of the truck has come an increase in the length of the wheel base. A few years ago the wheel base for trucks for interurban cars was usually about 6 feet, but at the time of this report a usual length of wheel base was 6 feet 6 inches, or 6 feet 10 inches. This has not, however, caused any difficulty in taking curves, but as curves on high-speed interurban roads have been generally reduced, it has been necessary to design the underside of the car so as to provide for the greater swing of the truck. With increase in weight and length there has also come increase in speed, which has tended to increase the diameter of the wheels, since with the larger wheel it is not necessary to increase the speed ratio to attain these higher speeds, and an easier and superior riding effect is believed to be obtainable. The 36-inch wheel is now looked upon as standard by high-speed roads, while some have introduced 37½-inch, and the Dayton and Troy Electric Railway Company has gone to the extent of using 39-inch on its limited cars. Rolled and forged steel wheels have been introduced and favored on many of these roads, but steel-tired and cast-iron chilled wheels also have their advocates and are frequently to be found.

Owing to the unsuitable tracks and special work encountered at city entrances interurban roads have often been compelled to keep down the size of their wheel flanges. This difficulty has led a number of city roads and city authorities to consider the matter when new tracks have been laid, and the Cleveland Electric Railway Company in its new work has aimed to permit the interurban cars to use flanges 1½ inches deep, which gives a good margin of safety where steel tires are used. The heavier cars have brought in also heavier axles and larger journals. The Stark Electric Railroad Company (Ohio) with 34-ton cars and 50-horsepower motors uses a 6-inch axle with a 7-inch gear seat; the Scioto Valley Traction Company

(Ohio) with heavy equipment uses 6½-inch axles; and the tendency is toward heavier axles. The question of braking has been an important one with interurban cars and has seen many improvements. Straight air brakes are now used almost universally. The Scioto Valley Traction line has its cars equipped with both straight and automatic air brakes to provide for regular train operation; and the Dayton and Muncie line uses a storage air system which is also the practice of the Detroit, Monroe and Toledo Short Line Railway Company (Mich.).

Gears.—Solid gears are being used by the majority of interurban roads in Ohio, and the others are adopting them as rapidly as possible, while in this respect interurban practice in Indiana and Michigan is said to have entirely departed from city-car practice. On all the roads visited in 1906 solid gears were used, the use of split gears having been abandoned. The gear and pinion are usually either 5 inches or 5½ inches face, and the diametrical pitch is usually 2½ inches.

Steel street-railway cars.—At least as early as 1902 steel street-railway cars developed from the earlier types of car designed for passenger and freight service on steam railroads. The widespread adoption of the steel car, brought to a commercial basis in 1897 in the movement of ore, coal, and other heavy materials, introduced also the steel-underframe car; and early in 1900 the construction of such was begun, so that at the present time steel-underframe merchant cars and all steel coal and ore cars are standard types on most of the great trunk-line systems of this continent. Subsequent to this development came the type of passenger cars in which steel was substituted for wood, as far as economically practicable, and in 1903 these steel underframes were constructed for a number of elevated-railway cars. The question then arose as to whether an all-steel car could be built of little greater weight than the wooden car, and the experiments in this direction have resulted in the use for regular service on elevated, subway, and other lines of all-steel cars, the weight of which compares very favorably with that of wooden cars of the same capacity and dimensions. The process of development brought with it two specific forms of construction, one absolutely fireproof, and the other semifireproof, or non-inflamunable. The fireproof car necessarily embodies construction in which there is practically no material that will burn, and though it is more expensive in first cost, it is perhaps less so in cost of maintenance. The design of the semifireproof cars involves the steel underframe, permitting the use of cement or other noninflammable form of floor, together with a steel superstructure lined or sheathed with some fireproof material, including noninflammable treated wood. Experience obtained with these various forms of construction shows that the all-steel car costs from 25 to 40 per cent more than the usual wooden type; and the semifireproof car built with steel underframe and with

steel superstructure costs from 20 to 30 per cent more. On the other hand, the life of the steel car is estimated to be at least two or three times as long as that of the wooden car, while in case of accident the steel equipment has superior qualities of safety and resistance, so that, considered from the standpoint of accidents alone, it should save many times its cost in safeguarding passengers in case of collision, etc., and in thus decreasing accident claims. It is a fact of common experience that a great many passengers traveling on the elevated and subway roads, where wooden and steel cars are intermingled in the make-up of trains, seek the steel cars by preference on the sole ground of greater safety.

A considerable variety of all-steel cars and of the semifireproof steel cars have already been built for electric-railway work. In a car or two built for the Metropolitan surface lines of the New York City Railway Company no wood at all is used in the construction of the car, except for part of the window sash and for the roof and floor matting strips, and these parts are treated with fireproof compound to render them non-combustible. This car, though of all-steel construction, is modeled so closely after the standard double-truck wooden cars of the New York City surface lines that it is difficult from external appearance to distinguish between the two. The car body is 28 feet long; the over-all length is 37 feet 1 inch; and the weight of the car body with motor and trucks is about the same as that of the wooden type of car. The steel underframe is made of angle-shaped sills, connected by pressed-steel channels. The platforms are built up of four channel members bolted to the body underframe; the floors and the sides are of steel plate; the side posts of channel section continuing from the bottom of the side sill to the top of the eaves. The carlines are bent up from angle steel, continuous from side post to side post, and the side posts are strengthened longitudinally by angle-iron bridge members. The lower set of outside panels, running from the guard rail to the bottom of the side sill, are riveted horizontally under the guard rail and vertically at each post, so that a single panel can be replaced in case of damage. The platform hoods are made of steel plates bent to shape in three sections, riveted at the joints. The seats and backs are formed of sheet steel, pressed to shape, stiffened with angles, and covered with carpet. These seats are held in position by overlapping cleats without the use of bolts, and are removable.

In 1906 some all-steel combination cars were supplied to the United Railroads of San Francisco. They are of the so-called California type referred to in the report of 1902, designed particularly to meet the varying climatic conditions of the region. These cars have a central closed section and front and rear open sections, and one of the problems was to preserve the strength of the car in utilizing the new material. These cars have a length over all of 40 feet 6 inches, the middle closed section being 13 feet 2 inches. The underframe,

side sheets, and outside finish to the eaves of the closed section, and the platform posts in the open section, are of steel in the form of rolled or pressed plates. The interior finish, such as doors, windows, sash, and deck moldings, is of wood; and the floor itself is of steel plate covered with one course of wooden flooring, while the lower and upper deck ceilings are of sheet steel. The carlines and purlines are made of rolled angles. The underframe consists of rolled-steel center sills, with a side-sill construction built up of Z-bars and pressed angle plates. The openings for the steps adjacent to the closed section are strengthened by placing reinforced angles along the sides of the step openings, extending past the body bolster.

The cars for the Market Street Elevated Passenger Railway lines of the Philadelphia Rapid Transit Company are of steel throughout, with noncombustible flooring composition, and are practically shock proof and fireproof. They have a length over all, including platforms, of 49 feet 7½ inches. The outside sheathing is of cold-rolled steel, and the longitudinal underframe consists of deep fish-belly side sills of cross bearings and connections in girder form, and is covered with corrugated-steel plates and a monolithic-flooring composition. The interior finish is of mahogany and the roof is constructed of tongued and grooved poplar with canvas covering. The seating arrangement provides 4 longitudinal seats for 9 persons each, and 8 cross seats in the center of the car for 2 persons each, resembling in this respect the type of subway and elevated cars now familiar in this country.

The all-steel cars of the Boston Elevated Railway Company are what is known as the "easy-access" type, and are 46 feet 7½ inches long over platforms, and each provides seating capacity for 48 passengers. The only wood employed in their construction is that in doors and floor mats. The underframe is built entirely of steel; the center sills are made of channel and the end sills of pressed-steel shapes. The car is provided at each end with antitelescoping plates on the top and bottom of the platform supports. The corner and door posts are special shapes of pressed steel and the double posts are T-section metal; the window sills, casings, and sashes are made of steel shapes and all the panels are steel plate, the top plates running the full length of the car; and the steel roof supports are so shaped as to form the camber in the roof. All-steel construction is carried out in the vestibule as well, and the ceilings of these compartments are made of steel plate with an overhead pocket lined with "transite" for the reception of switches. No bulkhead doors are provided, but there is a steel finish at each end of the longitudinal seats, which are formed of steel plates supported by angles bent to shape. A wooden mat is laid upon the monolith floor.

Another type of all-steel car is one built for street surface lines of the Brooklyn Rapid Transit system. It follows in general design the semiconvertible wood



PHILADELPHIA, PA., PREPAYMENT CAR PLATFORM AND FARE COLLECTION.



TYPE OF PREPAYMENT CAR OF PUBLIC SERVICE CORPORATION, NEW JERSEY

and steel cars adopted by that company as standard. The steel body has a length over all of 42 feet 6 inches, a total width of 8 feet, and a total weight of 20,460 pounds, which is about the same as that of a wooden car of the same dimensions. The cross seats have a capacity of 48 persons. The car is built with cross framing of 5-inch standard channel beams, with steel side plates fastened to the beams with angles. Steel plates fastened to the cross framing form the base or first course of the flooring, and this is covered with wooden flooring and with the usual center aisle mat.

In 1904 the Interborough Rapid Transit Company of New York City adopted an all-steel car, the first contract being for 200. The general dimensions differed but slightly from those of the wooden car, the total length of wooden cars over body corner posts being 42 feet 7 inches and of the all-steel cars 41 feet 1½ inches, while the length over buffers and draw-bars is the same, being in both instances 51 feet 5 inches. The floor framing is made up of two center longitudinal 6-inch I-beams and two longitudinal 5-foot by 3-inch steel side angles extending in one piece from one platform end sill to the other. The end sills are angles secured to the side and center sills by cast-steel brackets and in addition by steel anti-telescoping plates placed on the underside of sills and riveted to them. The floor is of galvanized corrugated sheet iron laid across the sills and secured to longitudinal angles by rivets. This corrugated sheet holds the monolithic fireproof cement flooring, on top of which are attached long floor strips as a wearing surface. The platform flooring is of steel plate, to which a rubber matting is cemented. The side and end frame of the car is composed of single and compound posts made of steel T-angles, while the roof frame is of wrought-iron carlines and pur-lines. The sides of the car are double, composed of steel plate on the outside riveted to the side posts and belt rails, and lined with electrobestos. The outside roof is of fireproof composite board covered with canvas. The head linings are of fireproof composition faced with aluminum sheets, and the moldings throughout are of aluminum. The wainscoting is of transite board and aluminum, and the window panels and interior finish are also of aluminum, lined with asbestos felt. The seat frames and the cushion frames are of steel throughout. Later steel cars such as those of the Long Island Electric Railway Company and those used in the Hudson tunnels are modifications, with various improvements, of types described above.

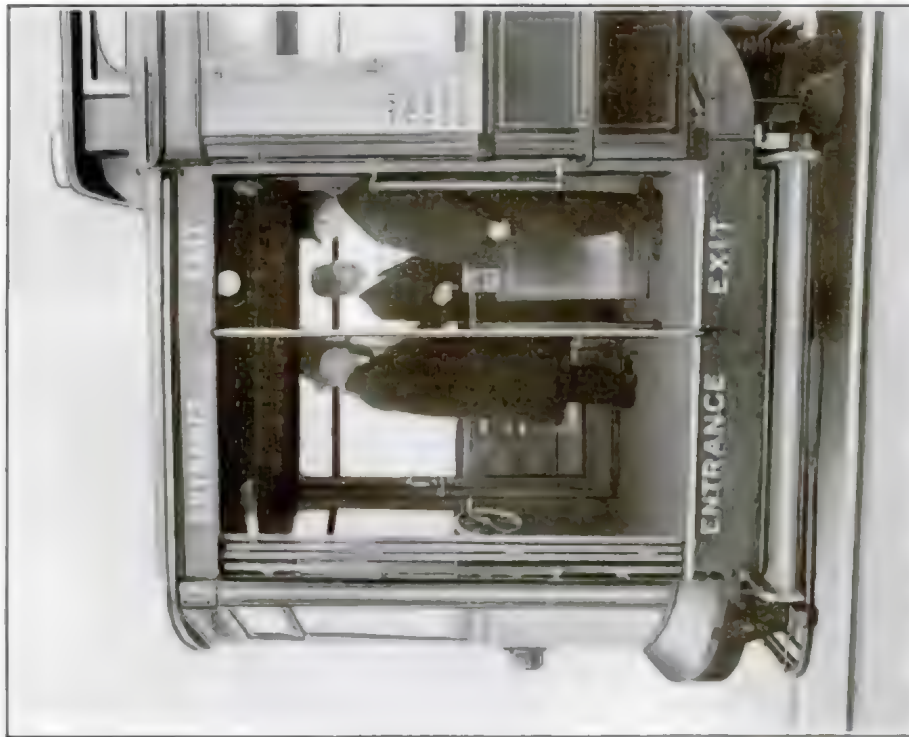
Pay-at-the-gate cars.—During the last few years there has been a notable development of cars designed for two distinct and specific purposes, both of which lend themselves to modified forms of construction. One of the purposes was that of reducing the number of accidents in getting on and off cars, and the other purpose was that of introducing a more exact

and scientific method of fare collection. It is necessary in discussing such cars to refer to them more or less by name. The "pay-as-you-enter" system originated in Montreal, Canada, and the first cars of that type were placed in operation on the lines of the local street railway in 1904. The principle which governed the design of the first of these cars was that the rear platform should be the pay office of the car—that is, that all fares should be collected on the platform at the moment of entrance to the car by the passengers. Naturally it became necessary that the car should be so arranged that the movement of passengers in and out could be controlled. Hence it was required that every passenger should be compelled to enter the car at the rear and to leave it at the front. The idea has been worked out in various ways, and in the more perfect types the car can be entered by the rear platform only, but exit can be made at either end. A dividing rail forms the passageway from the rear platform step to the entrance door of the car. The conductor stands behind the rail and collects each passenger's fare at the platform before the passenger enters the inclosed part of the car. The front platform is provided with an exit which is at all times under the control of the motorman. The position of the conductor on the rear car is advantageous in many ways. He is able, for instance, to collect the fares of every passenger entering the car, whereas, under the older methods many passengers were unable or unwilling to pay fares in crowded cars, and from 5 to 15 per cent of the earnings were thus lost to the company. The conductor is also able to prevent accidents at the platform steps, not only by assisting passengers to board the car and to alight, but by giving the proper signals to the motorman to start the car only when all the passengers are aboard or have alighted and are clear of the car. In like manner the motorman by his control of the front exit can minimize the chance of accidents at the front platform. The desultory signals by conductors from the interior of the car have always been a prolific source of accidents, and the presence of the conductor within the car has also rendered it difficult to make stops effectively and start up the car again promptly. The conductor has often been dependent upon the good-natured assistance of riders on the rear platform. Another source of delay with the old types of cars has been the conflicting movement of passengers entering and leaving the car, while the separate entrance and exits of the pay-as-you-enter type make it possible to collect and discharge passengers simultaneously and with the minimum of delay. Two general types of cars are found in use—double-end cars, which have the platforms alike, with arrangements whereby the slight changes necessary to establish the control system can be made in a few minutes, and single-end cars, which operate continuously in the same relative direction.

Effect on fares and accidents.—Data from various cities are interesting as regards both the collection of fares and the diminution of accidents. Cars of this type were introduced in Chicago in 1907, starting with 100 cars and increasing rapidly since that time. A report by President T. E. Mitten to the mayor of Chicago during 1908 stated that the fatal accidents were 1 to every 4,172,727 passengers carried, as compared with 1 to every 2,596,919 during the same period in 1907. Accidents other than fatal to passengers carried showed a decrease of over 54 per cent as compared with the same period in 1907, with the almost entire elimination of accidents in boarding or leaving the front platform. At Kansas City 5 cars were installed in June, 1908, and the general manager, in his accident report for November of that year, showed as compared with November preceding a decrease of 67.4 per cent in the number of accidents on the division using the cars. In New Jersey the Public Service Railway Company introduced 150 of the cars in April, 1908, increasing the number afterwards to 450, as they found that these cars not only carried the passengers with greater comfort and safety but reduced platform accidents. In Buffalo 50 cars were installed in January, 1908, and increased to 150, because the cars had decreased accidents, alleviated conditions due to crowding, decreased the number of regular cars necessary, increased the speed of the cars, and increased the revenues. Cars of this type are now operated with similar results in St. Louis, Mo.; Portland, Oreg.; Columbus and Cleveland, Ohio; Washington, D. C.; Des Moines, Iowa; Milwaukee, Wis.; Wichita, Kans.; etc.

Type used in Philadelphia.—A variation from this type of car is furnished in the cars adopted in Philadelphia, where what is known as the "pay-within" car has been utilized. At first a car called the "pay-as-you-leave" was patented for double-end operation. In this car the entrance was on the front end only and the exit at the rear, passengers paying their fares to the conductor on the rear platform as they left the car. The principal objections to this type were the increased length of platforms to 7 feet 1 inch, making the over-all length of the car 42 feet 2 inches, and the possible difficulty of collecting fares from passengers who had already reached their destination. There was also objection to the position on the front platform of the motorman, who was inclosed in a cab placed at the outside edge against the car-body bulkhead. From this position it was practically impossible for him to observe obstacles which might foul the car on the side next to the "devil strip." None of the plans proposed and thus developed up to the fall of 1907 met with the views of the company's management, and efforts were then renewed to design a car, satisfactory in other respects, into which the company's old standard cars could be converted at a small expense.

The outcome of this last effort was the "pay-within" car, which embodies not only the prepayment plan of fare collection, but the use of pneumatically operated sliding doors and folding steps designed to prevent accident in boarding and alighting. In this car, which is now in general use in Philadelphia, the entrance is from the rear platform only, and exit from the front platform, or—in emergencies—past the left side of the conductor on the rear platform. There is no bulkhead on either end of the car body, the entrance from the platforms being entirely unrestricted, except a center post on the rear platform, against which the conductor stands facing the rear of the car. In the top of this center post are the operating valves for controlling the movement of the doors and steps of the rear platform, while the door and step at the front platform are controlled by an air valve operated by the motorman and mounted alongside the brake air valve. The conductor, standing on the raised floor of the car body and facing to the rear, also commands a view of the platform and the rear steps. Passengers as they enter go to the conductor's right and pay their fares as they pass into the body of the car, receiving transfers or exchange tickets only at the time of paying the fare. The conductor does not leave his post, except in emergencies. The entrance and exit openings of the rear and front platforms, respectively, are closed by the pneumatically operated sliding doors, which move back into pockets formed in the sides of the car body. The platform step is interlocked with the door, so that when it is closed the step is folded up behind the platform sill, leaving no foothold whatever for a person who attempts to enter the car after the doors are closed. The bumper beams also are sheathed with sloping sheet-steel covers, so that there is no possible place for persons to ride on the outside of the car, inviting accident. The Philadelphia Rapid Transit Company, aside from advantage to itself, believes that in the introduction of this car it has provided one that is more comfortable, that reduces the overcrowding and shoving, insures better ventilation, with greater warmth and more coolness, according to the season of the year, and which materially lessens any possibility of accidents. In fact, the reduction in the number of accidents has been very gratifying, while regular passengers on the line have learned quickly to adapt themselves to the new system. The trainmen also are pleased with the improvement. Both conductor and motorman are completely inclosed from the weather. The conductor is relieved from worry about preventing accidents on the rear platform and his duty is accomplished with much less physical effort. In like manner the motorman is relieved from anxiety in watching the front step to prevent passengers from jumping off before the car has stopped. As to the effect on the collection of fares, receipts on lines equipped with these cars have shown an increase of about 8 per cent over a corresponding period of the previous year.



PREPAYMENT CAR USED IN BUFFALO, N. Y.—METHOD OF ENTRANCE.



PREPAYMENT CAR USED IN BUFFALO, N. Y.—METHOD OF EXIT.

Car fenders and wheel guards.—The statistical data on fenders and brakes will be found in Chapter IV (Part I) on Track and Rolling Stock, from which it will be seen that the use of fenders is very general. These data include wheel and truck guards. The data given in Table 44 show also a very large increase in the use of air brakes during the census period, due obviously to the resort to larger cars which are too heavy to be stopped quickly in a short distance by means of hand brakes. It will be noticed that a large number of cars are furnished with both styles of brakes as a precaution against the failure of one or the other to operate.

The subject of fenders and wheel guards is one of general interest in connection with street-car traffic, but is necessarily of greatest importance as regards cars operating within city limits. The most exhaustive study given the subject in recent years is that of the Public Service Commission for the first district in the state of New York. During the year 1908 a number of tests were conducted under the auspices of the commission at Schenectady, N. Y., and East Pittsburgh, Pa. At the close of the year a report on the subject was presented in regard to which Commissioner Maltbie said that probably no series of tests had ever been made with such thoroughness and with so close approximation to actual conditions, and claimed that with proper fenders and wheel guards the number of fatalities due to the operation of street cars in New York could be considerably reduced. While financial considerations were not the principal thing to be considered, the expense of carrying out the recommendations of the subcommittee making the specific investigation would not exceed \$300,000, as against which the companies operating surface lines in New York City had incurred expenses for injuries, damages, and legal expenses during the year 1906-7 amounting to over \$3,500,000. According to the commissioner, it was admitted that a considerable portion of this sum could have been saved the companies by the introduction of proper fenders and wheel guards.

The report of its electrical expert as adopted by the commission recommended that all cars throughout Greater New York be equipped with automatic wheel guards, and that in a large section of Brooklyn, as well as in the boroughs of Queens, Richmond, and the Bronx, the cars be equipped with protective fenders as well. The investigation included 1,800 tests, during which no fewer than 38 fenders and 29 wheel guards were made the subject of rigorous experiment, dummies being used on the tracks to show the effect on limbs and body. No particular fender or wheel guard showed such efficiency as to warrant its preference over all others, but the tests indicated that many of

them were superior to those already in use and less expensive to maintain.

The various devices submitted for test were designated in the report in a classification which follows, and which may well be accepted as a summary of the apparatus available at the time of the present census report:

PROJECTING FENDERS.

Nonautomatic.—A fender carried in a fixed position at a height above the track, predetermined, according to the characteristics of the permanent way.

Automatic.—A fender carried as close to the track as the characteristics of the permanent way will allow, and dropped to the track by a projecting piece in front of the fender coming in contact with the object to be picked up. This actuates a trip which may be either mechanically or air operated.

Platform trip.—A fender carried normally as close to the track as the permanent-way conditions will permit, and dropped to the track by the motorman actuating from the platform a mechanism which drops the fender (ready to pick up an object).

Shearing-projecting type.—A fender carried in a fixed position above the track, at a height predetermined, according to the characteristics of the permanent way. This type of fender embodies the characteristics of the steam-locomotive pilot with the triangular frame, the sides of which are intended to shear the object clear of the track.

WHEEL GUARDS.

Automatic (mechanical drop).—A wheel guard, the apron of which is carried as close to the track as the characteristics of the permanent way will allow, and which is forced to the track by a compression spring or other mechanical device, being released by the object to be picked up coming in contact with a trip which actuates the release mechanism.

Automatic gravity drop.—The characteristics of this type of wheel guard are the same as those of the automatic mechanical drop, with the exception that the apron, on being released, drops to the track by gravity.

Platform trip.—A wheel guard, the apron of which is carried as close to the track as the characteristics of the permanent way will allow and dropped to the track by the manual operation of a platform-actuated mechanism, including the compression-spring effect, as well as a platform-resetting feature. This method of operation is usually supplemental to the automatic feature of this type of safety device.

Shearing-automatic (mechanical drop).—A wheel guard, the triangular frame of which embodies the characteristics of the steam-locomotive pilot. The frame is carried on the pilot board or car sills, at a predetermined height above the track dependent upon the characteristics of the permanent way, and is forced to the track by a compression spring or other mechanical device upon being released by the automatic tripping mechanism coming in contact with the object to be removed from between the rails.

Shearing-automatic (gravity drop).—The characteristics of this wheel guard are similar to those of the shearing-automatic (mechanical drop) with the exception that the frame on being released drops to the track by gravity.

Shearing nonautomatic.—The characteristics of this wheel guard are similar to those combining the automatic features, with the exception that in this case the frame is carried in a fixed position from the pilot board at a predetermined height above the track dependent upon the characteristics of the permanent way.

CHAPTER II.

FARES AND TRANSFERS.

A discussion will be found in Chapter V (Part I), Traffic, of the data connected with the relation of population and passenger business, and with the adequacy of service and the income yielded. Before passing on to the subject of fares and transfers, it may be pointed out that the tables relative to physical equipment in Chapter III of Part I reflect the installation and use of much larger plants. Thus the generator capacity of 898,362 kilowatts in 1902 for the operation of a total of 66,784 cars showed a provision of 13.5 kilowatts per car. In 1907 the plant of 1,723,416 kilowatts for 83,641 cars of all kinds showed a provision of not less than 20.6 kilowatts per car, a very marked increase, which is explained in part by the resort to heavier cars of much greater carrying capacity, requiring more energy to move them. It should be remembered in connection with these figures that not all of the generator capacity can fairly be compared with the number of cars, since part of the output is sold for commercial light and power purposes. The statement that the cars actually required more propelling current per car mile is borne out by the statistics in Table 21, which show that the kilowatt consumption per car mile for railways that do not buy or sell current increased from 2.14 in 1902 to 3.26 in 1907. Part of this notable increase may be due to increased haulage of freight; but most of it results from the use of heavier, bigger rolling stock. Eliminating the freight mileage, it is found that in 1902 the 60,290 passenger cars made 1,120,101,944 car miles, or 18,579 car miles per car per annum. In 1907 the 70,016 passenger cars made 1,583,831,199, or 22,621 car miles per car per annum. The increase in car mileage per passenger car is obviously much below the increase in consumption of power. This change to heavier rolling stock, and the enforced increase in facilities for keeping it in motion, as well as the larger consumption of current in doing so, offer a partial explanation of the increase in net income of only 31.8 per cent in the period as compared with a gain of 68.9 per cent in the earnings from operation; and it is to be observed in this connection that the increase in operating expenses was 76.6 per cent.

Of the 9,533,080,766 passengers carried, 7,441,114,508 paid full fare for the trip; 1,995,658,101 were carried on transfers; and 96,308,157 rode free. The transfers were issued at 7,376 transfer points. Table 51 shows 4.70 fare passengers per car mile, while Table 187 shows 43.06 fare passengers per car hour;

but this latter figure may be defective because of the comparatively rare use made of the car-hour unit by the systems reporting.

*City fares.*¹—The miscellaneous income, not from operation, of operating street-railway companies is so small—less than \$12,000,000 out of \$429,000,000—that it is vital to the companies to protect their fare systems in every way and to render them as productive as possible. But there is still a wide variety of opinion and practice in dealing with this subject. Fares may be broadly divided into two groups, urban and interurban, but the suburban travel introduces also a number of varieties and local permutations. The standard practice on all the urban street-railway systems of the United States, as is well known, is to charge 5 cents as the unit cash fare for one continuous ride within the corporate limits of any city or town regardless of the length of the ride; and this applies equally to elevated roads, subways, and even to tunnels under rivers, such as that under the Hudson, between Manhattan Island and New Jersey. Very recently a few companies in Massachusetts raised their fares to 6 cents, on demonstrating their inability to continue in operation and give good service for anything less. In Cleveland the attempt to reduce the unit rate of fare to 3 cents resulted in bankruptcy, as noted in the chapter on franchises. As a matter of fact, the remarkable increase in all operating costs and prices of material has led to considerable discussion among street-railway companies as to a general increase in fare, and a restriction of processes that go on reducing the fraction which the corporation receives of the normal 5-cent fare—in itself a very convenient unit from various points of view, and still regarded by managers as preferable within cities to any fare based on a complicated system of zones with tickets and expensive inspection. The objections to the zone system are not, however, regarded as applying to interurban and suburban travel where the zone is very generally recognized, if the word be taken to cover somewhat more arbitrary boundaries than those employed in Europe with almost scientific regularity.

In several cities the 5-cent fare is reduced to 4 cents, if the passenger purchases tickets or tokens in quantities. The Indianapolis Traction and Terminal Company and the Milwaukee Electric Railway and Light

¹ See also "Rates of fare," p. 294, Ch. V of this part.

Company sell 6 tickets for 25 cents and 25 tickets for \$1. Conductors are supplied with strips of both kinds of tickets. The Springfield (Ill.) Consolidated Railway Company sells 6 tickets for 25 cents on cars, and books of 25 tickets for \$1 are sold at the company's general office. The ticket books are purchased in moderately large quantities by merchants and others who sell them to customers at cost as an inducement for trade. In Indianapolis 85 per cent of the gross passenger revenue is derived from ticket sales, and the sales of 25-cent strips are largely in excess of the sales of the \$1 strips. In Milwaukee the percentage of ticket sales is almost as large, being approximately 80 per cent. Ticket sales in Springfield, Ill., aggregate 25 per cent of the total revenue. The Albany and Hudson Railroad Company sells 24 tickets for \$1, good on the city lines in Hudson. In Spokane, Wash., the city lines of the Spokane and Inland Empire Railroad system sell 22 tickets for \$1. In Auburn, N. Y., the Auburn and Syracuse Electric Railroad Company does the same thing, to the extent of 5 per cent of its total revenue. Syracuse, N. Y., sells 20 tickets for \$1. Springfield, Mass., sells a 20-ride ticket for \$1 and a 100-ride ticket for \$5, the yield representing 6 per cent of the total passenger income.

The attempts made to force the companies to collect only a 5-cent fare for extreme distances, based on the argument that the broadening of city areas has brought a larger territory within the legal scope of such a rate, have not been generally attended with success. Thus a double or 10-cent fare between Brooklyn, N. Y., and Coney Island has been upheld as legal by the courts. The New York Public Service Commission of the First District made a similar ruling as to a fare of 10 cents collected by the Brooklyn Heights Railroad Company, on the ground that the rate was neither illegal nor unreasonable. The case is of general interest. The Flushing Association alleged that the company charged a second fare of 5 cents to passengers traveling in each direction between Ridgewood and Flushing, and maintained that such extra charge was illegal and in violation of the terms of the company's charter. In its answer the company denied the allegation of illegality and maintained that its franchises expressly authorize a fare of at least 10 cents, that such fare is reasonable, and that a reduction would involve such a loss as to be confiscatory. The opinion of the commission said:

The fact that one may ride 20 miles for a single fare results from the elaborate system of transfers, some of which are made mandatory by the railroad law and some a voluntary arrangement between distinct though affiliated companies of the Brooklyn Rapid Transit system. The fact that combinations of these compulsory and voluntary transfers make possible a ride of 20 miles for 5 cents, does not in itself constitute a sufficient legal reason why the Flushing-Ridgewood line should be operated to its terminus for 5 cents. The evidence shows that the Long Island Railroad station is within a stone's throw from the terminus of the defendant's line at Flushing, and that in the morning rush hours

the steam-railroad platform is covered with people waiting to go to Manhattan by the steam trains at 20 cents fare, while the defendant's trolley cars start out from the same point not more than one-half filled. It is therefore apparent that one reason why people do not travel more on the defendant's cars is because of the long time consumed in proceeding the 12 miles to the Brooklyn Bridge. There is no reason to believe that a reduction of fare would cause such an increase of business as would wipe out the deficit.

There are several types of fare for adults that are different from those afforded under the 5-cent system or the average ticket system, such as rates for workmen, postmen, etc. On one road, tickets under the workman designation are sold at \$2 per 60 and are good for working girls, but carry no transfer privilege. In another instance books of 50 tickets sold at \$1.50 are good from 6 to 8 a. m. and from 5 to 7 p. m. In another instance such tickets are good from 5 to 6.30 a. m. and from 4.45 to 5.45 p. m. In a third instance 8 tickets are sold to workmen for 25 cents, good from 5.30 to 7.30 a. m. and from 5.30 to 6.30 p. m. In several cases the tickets for postmen are subject to a discount of 50 per cent, often without any restrictions, but in some instances they must be purchased in strips of 20, while in others the users are required to be in uniform. It is a common requirement of city ordinances and franchises that municipal employees in uniform or badged shall be transported free, on the assumption that they are on duty. A variety of other cases appear where the 5-cent fare is reduced for one reason or another. In one instance clergymen are carried at half price—2.5 cents; and in another the privilege is extended to soldiers. One road reports the use of tickets sold in lots of 100 for \$3.75, with a 90-day limit.

In one or two cities it has been a practice to issue tickets in lots of 150 for \$2.50, good for merchants only, and, as a stimulus to trade, passengers are often able to travel free to or from a given store, the proprietor of which provides his customers with tickets bought in large quantities from the local company. An ingenious development of this practice of combining trade and traffic has been worked out, chiefly in New England, through the use of redeemable cash-fare receipts. The street-railway companies have nothing to do with the redemption of the receipts, which is arranged for by local merchants, who give cash refunds on cash purchases of \$1 or more. In general, the refund is equivalent to the amount of car fare paid. An additional feature of the scheme is the award of cash prizes monthly to collectors of the fare receipts. The basic principles of the redeemable-fare receipt system, which naturally finds its best application in interurban work, are illustrated by the 5-cent fare receipt in use on the Norwich and Westerly Railway, a 24-mile interurban line in eastern Connecticut. This road is divided into seven 5-cent fare zones. Passengers upon entering cars at intermediate stations pay their fare through to a destination, and receive in exchange the proper number of 5-cent fare receipts, each

consisting of a transportation coupon with a redemption certificate attached. One coupon is collected and rung up at each fare limit, but the passenger retains the redemption certificate. Each of these 5-cent redemption certificates entitles the holder to a cash refund of 5 cents on any purchase of \$1 made within ten days of date of issue at any one of the 26 stores in Norwich or Westerly listed on the back of the certificates. The passenger does not surrender the redemption certificate when redeeming it at a store, but after presenting it for cancellation retains it to send it at the end of the month to the company printing and issuing it in competition for cash prizes to the value of \$75 each month. The scheme involves none of the features of a lottery, as the prizes are awarded to the persons sending in the largest numbers of redemption certificates, whether canceled or uncanceled.

A variation of this method is introduced in a strictly city system, where a single 5-cent fare is charged and transfers are issued. The Cape Girardeau-Jackson Interurban Railway Company has the redemption plan with prizes, as in the case of the New England companies referred to, but one purpose of the ticket is to decrease transfer traffic. Each passenger paying cash fare receives one of these fare receipts, which is good as a transfer if one of the intersecting lines on the receipt is punched, but this punching renders the receipt "not redeemable and not eligible for prizes," as is indicated on the reverse side by the punch mark. This provision is also counted upon to influence passengers to refrain from asking for transfer privileges for other than their own personal use. These redeemable-fare receipts are not issued to passengers who present in payment of fare tickets which are sold 6 for 25 cents. This particular form of fare receipt has therefore a fourfold purpose—stimulation of traffic, substitution of cash for ticket traffic, decreasing transfer traffic, and checking up conductors.

It will be seen from the above data that tickets are by no means unusual in street-railway operation within cities, although they find their widest application outside city limits. The extending use of "prepayment" cars, in which the fare is paid as the passenger enters, makes it particularly noteworthy that the experience of the past few years tends to show that to secure better results from this system tickets might be employed. The delay in making change at the vestibule not only slows down the schedule, but keeps people standing in the roadway barred from mounting by the crowd in front waiting for change. Thus the street traffic is also hampered, whereas the use of tickets might lessen, if not wholly eliminate, the troubles. At present New York City is a typical case of this kind, as the street railways are without a ticket system, except as applied to transfers.

Tickets for children, another example of the reduction of the unit fare of 5 cents, are issued on a large scale, although children can often travel at a reduced

fare without ticket, or free, depending upon age. The ages at which reductions became operative vary greatly, as do the "fare-free" ages. On some roads no fare is asked for children under 8 years; on others the limit is as low as 2. The ages at which full fare is required generally range from 3 up to 12, though one instance of 14 is noted. These conditions apply in the case of cash fares. School and children tickets are issued in large quantities, yielding for the former, in the case of some two score companies giving data, an average rate of 3.02 cents and for the latter, in the case of 8 companies, 2.62 cents. Speaking broadly, it may be said that the 5-cent rate is cut in two, but there are many interesting variants. School tickets, subject to the rule that they are good on school days only, range in price from 2.5 cents to 4 cents. The 4-cent tickets are sold in lots of 25, and the road issuing them also issues a "students' commutation" ticket at \$3.75. In one instance tickets are issued at 2.5 cents in lots of 50 for "school children under 18," for use between 8 a. m. and 5 p. m., while in another case, at the same price, the number is 20 or 40, and the age is 17. Most roads issue the tickets only on receiving a certificate from the principal of the school. On one road the coupon book of 50 tickets, not transferable, is good for one year; but in another case the tickets have to be used up during the month purchased, and on school days between 7 a. m. and 6 p. m. One rate in use is 33 tickets for \$1, but the conditions vary, and there is a notable absence of standardization in the practice of the companies in dealing with this matter.

*Interurban fares.*¹—The rates of fare charged on interurban electric railways vary greatly. In several states which have enacted 2-cent-a-mile fare laws, such as Illinois, Indiana, and Ohio, the basic rates naturally do not exceed the legal limit, and in other states, as a general rule, the basic rates are from 1½ cents to 2½ cents. It may be said that ordinarily the rates are a little lower than steam-railroad rates, and these lower rates, together with the greater frequency of service, are the chief reasons why so many steam railroads paralleled by electric railways have lost to them, at least temporarily, so large a proportion of their local patronage. Where special facilities are afforded, as for example on the "limited" trains with a limited number of stops on the trip, it is customary to charge an extra fare, as is the practice on steam railroads. On the Terre Haute, Indianapolis and Eastern Traction Company the average one-way fare is 1.7 cents per mile, the average round-trip fare is 1.6 cents per mile, but an excess is charged for limited trains of 5 cents for every 20-mile section or its fractional part. The Aurora, Elgin and Chicago Railroad Company charges no excess fare on its "limited" trains, but it runs several parlor buffet cars, for which an excess of 15 cents is charged. On these cars light refreshments

¹ See also Table 170 and accompanying text, in Ch. IV of this part.

are served, and the 15 cents excess is credited against any such purchase made on the trip. In Ohio the Lake Shore Electric Railway Company charges 1.8 cents for one-way local fare, with 10 per cent reduction on round-trip tickets and 1½ cents for commutation tickets. Its mileage books are sold at 1.6 cents per mile. It makes no extra charge for "limited" travel.

In the far West, where steam-road rates have always been high, basic rates of 2½ cents and even higher are in force. The Spokane and Inland Empire Railroad Company has a rate of 2½ cents per mile on its Spokane and Inland division, but on the Coeur d'Alene division the basic rate is reduced to 2 cents a mile. This company makes no extra charge for limited trains, but it runs chair cars on these trains, for which an extra charge of 25 cents a seat is made. On round-trip tickets it makes a reduction of 5 per cent. It sells a book containing coupons representing \$20 worth of one-way fares for \$16 and also books of commutation and school tickets at the rate of 1½ cents per mile. The Pacific Electric Railway Company on some of its scenic routes charges as high as 8 cents per mile. The reason for this is the high cost of constructing and operating such lines as the section of the Alpine division, which reaches the top of Mount Lowe, 21.3 miles from Los Angeles. The one-way fare for this distance is \$1.75 and the round-trip fare is \$2.50. The rates on some of the other lines of this company, as, for example, between Los Angeles and Pasadena, are as low as 1½ cents per mile.

The basic rates of interurban companies operating in New York and Pennsylvania are generally lower than those used by the interurban roads in the Middle West. The Utica and Mohawk Valley Railway, the Auburn and Syracuse Electric Railroad companies, and the Oneida Railway all use 1½ cents as a basis for one-way local fares, as does also the Lackawanna and Wyoming Valley Railroad Company. The Rochester, Syracuse and Eastern Railroad Company and the Albany and Hudson Railroad Company, however, use 2 cents. None of these roads charges excess fare on any train. The interchangeable mileage book used by the companies named which operate in the state of New York contains coupons for 500 miles and is sold for \$6.25. The Lackawanna and Wyoming Valley Railroad Company sells a mileage book at the same rate. The Auburn and Syracuse Electric Railroad and the Rochester, Syracuse and Eastern Railroad companies sell commutation tickets at rates as low as ¾ cent per mile.

Interurban roads, like city lines, issue school tickets, workmen's tickets, etc., subject to such reductions as have already been noted, and they have also a variety of miscellaneous rates and tickets for round trips, commutation, etc. Where reductions are made it is often a condition not to check baggage free, but to charge extra for it or to limit it closely. Commutation tickets are frequently sold on a liberal basis.

One instance is noted of tickets in books of 100, 200, and 400 coupons of 5 cents each, at 15, 25, and 32 per cent discount to the purchaser and his family. On the Boston and Worcester Street Railway student tickets are sold in strips of 10 for 25 cents, or 50 per cent reduction, upon the certificate of the principal of the school. The Spokane and Inland Empire Railroad Company sells school tickets at 2½ cents each.

It is now the custom of the interurban lines to use tickets, but the practice is not universal. One may ride for two or three hours on some New England lines, such as those in the Berkshires, without purchasing a ticket, as, for example, from Pittsfield to North Adams or Williamstown; or from Springfield to Huntington. But it is recognized that the use of tickets aids in the collection and protection of income and helps the auditing department. On some lines an excess rate is charged for cash fares collected en route, to prevent passengers from entering the cars without first buying tickets at the stations. This excess charge is 5 or 10 cents, and in some cases is returned on presentation of the cash receipt. A great variety of tickets have come into use, usually in coupon sections, to match the divisions traversed, and many of the roads employ a duplex form as an audit check. Hat checks are used on some lines which carry both local and through traffic, where it is hard for the conductors to remember and identify passengers. The most original form of token or ticket used in this country is the small aluminum disk with a hole in it, like a Chinese coin, employed by the Municipal Traction Company in Cleveland as an equivalent to the 3-cent fare. This token virtually adds to the small currency in circulation in the community for trade purposes. Such tokens are not generally approved of by street-railway managers, as they are liable to be counterfeited on a large scale, and detection would be difficult.

Transfer traffic.—As noted elsewhere, 944 of the 945 operating companies reported the number of passengers, and 522 of them, or 55.3 per cent, issued transfers. These figures are in themselves a striking proof of the extent to which transfers are used. The vast majority of these transfers are issued free. The transfers are, of course, duplicates of fares, and their number would indicate that they were issued to 26.8 per cent of the fare passengers. The data in Table 187 show the New York City Railway Company with a proportion as high as 51.7 per cent. In Nashville, Tenn., an apparent ratio of over 50 per cent exists. This particularly high ratio results from the fact that in Nashville all the cars run into a central transfer station, a little out of the business center of the city, and a large part of the transfer passengers come from lines which do not pass through the business district in entering the transfer station. The transfer passengers ride an extra block or two to reach their destination after leaving their original car, in a manner

analogous to that in which transfer passengers from the shuttle trains on the Third Avenue Elevated in New York ride on the line to the Grand Central Depot and the Long Island Railroad.

A few years ago street-railway managers in general were enthusiastic over transfers because of their effect in building up traffic, but an entire change of opinion has resulted from the inordinate expansion of the system. Now it is being subjected to various checks devised to keep it within reasonable limits.

The open abuse of the free-transfer privilege has led to much legislation attempting to penalize and minimize dishonesty on the part of passengers and others. Chicago furnishes one of the most interesting cases in point. There hundreds of men, women, and children rode on the cars every day with transfers picked up or purchased in the street or in stores. At one point alone, according to a statement made by witnesses in court, each of a dozen newsboys had an income of from \$1 to \$3 per day through the sale of these slips. There were about 100 points where, during the morning and evening rush hours, these slips were exchanged or sold. Numerous factories were discovered where employees traded transfers on the premises in the morning and secured others for the return trip in the evening.

The ordinance governing the use of transfers issued by street-railway companies in Chicago was supposed to be broad enough to give ample protection against such trafficking, and in one important case the claims of the city and the company as to its validity were sustained in the supreme court. The law provides a penalty of from \$5 to \$100 for each offense of giving away, receiving for improper use, selling, bartering, or exchanging these slips. But the company did not always have full support in its efforts to check these abuses, until with the passage of the franchise ordinance under which the company now is operating, the city became a partner in the receipts. A change in the attitude of the public, the police, and the courts was soon apparent. The misuse of hundreds of thousands of transfer tickets every day was seen to be an important item, and the evil was taken firmly in hand. Warning of the penalty was given on the reverse side of the transfers, newspaper publicity was called in aid, and investigators were detailed to locate the points where violations of this ordinance were most numerous, and to report to the police department. Officers in plain clothes, accompanied by several investigators, began a series of raids under the direction of the company's secret-service and legal department; junction points were visited, and whenever arrests were made the patrol wagon was brought to the spot to make the raids more impressive. Many of the offenders were small boys and they were either taken to the juvenile court to be reprimanded or to their parents for prompt punishment. It was a rare case when the same boys had to be taken into court for severe punishment on a second charge. In nearly every case where adults

were arrested for purchasing, giving away, or picking up transfers a conviction and fine were secured. When, as occasionally happened, the defendant was a business man of some prominence, the publicity in the daily press was something feared more than the fine. As a further step in the campaign, concerns employing large numbers of men were asked to aid in checking violations of this ordinance. For the most part they agreed cheerfully, and as a result placards were distributed and posted in many factories and stores warning employees against misuse of transfers on the premises, and quoting the section of the city ordinance under which prosecutions were threatened. These cards, printed in English, German, and Polish, bore the signature of the firm or corporation in whose place they were posted. Other notices prepared for display in the cars were worded practically the same as the reverse side of the transfer slips. Employees of the company were also asked to give information as to points where they discovered misuse of transfers, and conductors were forbidden to leave their transfers at any place where they might tempt improper use. The company and the city have both profited by the crusade.

Registering fares.—The use of fare registers on city cars is universal, and the registers are supplemented by systems of inspection and supervision at terminals or en route. Many of the city lines also register transfers as well as cash fares. The companies that register transfers and sell tickets usually have one dial for cash fares and another for all tickets. The New York City Railway Company does not register transfers, but the Brooklyn Rapid Transit system does. Other large roads registering transfers are the Detroit United Railway, United Railways Company of St. Louis, Indianapolis Traction and Terminal Company, and the Twin City Rapid Transit Company. It is believed that the whole business of a company is thus brought to a much stricter account.

The practice of interurban roads in registering tickets and cash fares presents some features of interest. Some companies use an indicating and recording register and ring up all cash and ticket fares collected, including mileage. Some use a register for city fares only. The Western Ohio Railway Company uses an indicating and recording register on its local cars, but on its limited cars uses no register of any kind. The Terre Haute, Indianapolis and Eastern Traction Company uses registers on some divisions, but on other divisions has its conductors make up their trip reports from tickets collected and the stubs of the duplex cash-fare receipts issued. The Boston and Worcester Street Railway Company uses two single registers in each car. On branch lines one register is used for recording cash fares collected in each zone and the other for recording tickets and transfers received. On the main line one register is used for recording all through tickets between Boston and Worcester, and the other records cash and local-ticket fares between intermediate points.

CHAPTER III.

USE OF ELECTRICITY BY STEAM RAILROADS.

Classes of roads affected.—One of the most notable and important developments of the census period 1902 to 1907 was the adoption of electricity on steam railroads. Previous steps in this direction had been tentative and almost entirely in the direction of substituting electricity for steam on elevated railroads within city limits. Now, however, main or trunk lines of steam railroads have entered the electric-traction field with definite purpose, so that the question no longer is one of the mere adoption of electricity, but rather of how far the new motive power can or will be substituted for the old. The classes of steam railroads affected by this momentous change are broadly three in number: (1) Electric divisions of steam railroads; (2) mixed steam and electric railroads; (3) electric railways owned and operated or controlled by steam railroads and treated as separate units in the general organization.

Roads of the first and third classes are included in the general tabulation of street and electric railways, but in order to make the statistics for 1907 comparable with those of 1902, the mixed steam and electric roads which form the second class have been included only in the general tabulation for 1907, in which tabulation they were included in the census of 1902.

The following list shows the roads of the first and second classes thus included in the general tabulation for 1907:

Electric divisions of steam railroads and mixed steam and electric railroads included in the census of 1907.

STATE.	Class.	Name.
California.....	1	Coronado R. R. Co.
Colorado.....	1	Denver and Inter-Mountain Ry. Co.
Colorado.....	2	Colorado Springs and Cripple Creek District Ry. Co.
Connecticut.....	2	New York, New Haven and Hartford R. R. Co. (New Canaan branch). ¹
Illinois.....	2	Peoria Railway Terminal Co.
Massachusetts.....	1	New York, New Haven and Hartford R. R. Co. (Nantasket division). ¹
New Jersey.....	1	West Jersey and Seashore R. R. Co. (Camden and Atlantic City branch). ¹
New Jersey.....	1	West Jersey and Seashore R. R. Co. (Atlantic City and Longport branch). ¹
New Jersey.....	2	Cape May, Delaware Bay and Sewell's Point R. R. Co. (Residing Railroad). ¹
New York.....	1	Funda, Johnstown and Gloversville R. R. Co.
Rhode Island.....	1	New York, New Haven and Hartford R. R. Co. (Providence, Warren and Bristol branch). ¹
Virginia.....	1	Norfolk and Southern Ry. Co. (Virginia Beach division). ¹

¹ No financial data—could not be separated from steam-railroad accounts.

Among steam and electric railroads of the second class, not included in the census tabulation, are the following:

STATE.	Name.
California.....	Northwestern Pacific R. R. (North Shore R. R., electric division).
California.....	Los Angeles and San Diego Beach R. R. Co. (electric division).
New Jersey.....	Hoboken Manufacturers R. R. (Hoboken Railroad, Warehouse and Steamship Co., lessor).
New York.....	New York, New Haven and Hartford R. R. Co. (New York division).
New York.....	Long Island R. R.
New York.....	Bush Terminal R. R. Co.
Ohio.....	Cincinnati, Georgetown and Portsmouth R. R. Co.
Ohio.....	Felcity and Bethel R. R. Co.
South Dakota.....	Chicago, Burlington and Quincy R. R.—Deadwood (S. Dak.) Central R. R.

Some examples of the third class, namely, electric railways owned or controlled by steam railroads and operated as separate units, are the following:

STATE.	Name.
Connecticut.....	New York, New Haven and Hartford R. R. Co. (street-railway department operated by the Connecticut Company).
Illinois.....	Coal Belt Electric Ry. Co. (owned by Missouri Pacific R. R.).
New Hampshire.....	Portsmouth Electric Ry. Co. (owned and operated by Boston and Maine R. R. Co.).
New Hampshire.....	Concord and Manchester Electric Branch of Concord and Montreal R. R. (owned by Boston and Maine R. R. Co.).
New Jersey.....	Ocean Street Passenger Ry. Co. (owned by Reading R. R.).
Ohio.....	Wellston and Jackson Belt Ry. Co. (operated by Hocking Valley Ry. Co.).

Closely allied with the third class of electric railways owned or controlled by steam railroads are properties which are thus controlled through the agency of a holding or operating concern and which are operated as separate units. Examples of this class are:

STATE.	Name.
New York.....	Long Island R. R. (steam). Long Island Consolidated Electric Companies (holding company for several electric railways which are operated as separate units).
Massachusetts.....	New York, New Haven and Hartford R. R. Co. (steam). New England Investment and Security Co. (holding company for a large group of electric railways operated as separate units).
Rhode Island.....	New York, New Haven and Hartford R. R. Co. (steam). Providence Securities Co. (holding company for the electric railways of Providence and vicinity).

In connection with the general subject of electric and steam railroad traffic the practice of electric railways in leasing tracks from steam railroads is of interest. According to the statistics obtained in 1907, 258.02 miles of track operated by electric railways were thus leased or operated under various agreements. These companies and the mileages are as follows:

Companies leasing track from steam railroads.

STATE.	Name.	Miles of track leased from steam railroad.
Total.....		258.02
Alabama.....	Sheffield Co.	0.50
Florida.....	Amelia Beach Co.	1.00
Illinois.....	Suburban R. R. Co.	2.00
Illinois.....	Chicago and Milwaukee Electric R. R. Co.	3.22
Illinois.....	East St. Louis and Suburban Ry. Co.	2.16
Illinois.....	Keokuk and Western Illinois Electric Co.	6.14
Illinois.....	Coal Belt Electric Ry. Co.	1.90
Indiana.....	Louisville and Northern Railway and Lighting Co.	4.62
Iowa.....	Fort Dodge, Des Moines and Southern R. R. Co.	37.70
Iowa.....	Waterloo, Cedar Falls and Northern Ry.	20.39
Kansas.....	Iola Electric R. R. Co.	1.00
Missouri.....	St. Francois County Ry. Co.	2.09
New York.....	International Ry. Co.	24.12
New York.....	Ocean Electric Ry. Co.	0.35
New York.....	Ononda Ry.	109.42
New York.....	Schenectady Ry. Co.	11.30
New York.....	Utica and Mohawk Valley Ry. Co.	12.98
North Carolina.....	Asheville Rapid Transit Co.	2.41
Ohio.....	Toledo, Port Clinton and Lakeside Ry. Co.	2.00
Pennsylvania.....	Pottsville Union Traction Co.	3.40
Pennsylvania.....	Lackawanna and Wyoming Valley R. R. Co.	1.78
Pennsylvania.....	Wilkes-Barre and Wyoming Valley Traction Co.	0.50
Virginia.....	Norfolk and Portsmouth Traction Co.	0.32
Virginia.....	Virginia Passenger and Power Co.	3.12
Washington.....	Puget Sound International Railway and Power Co.	6.19

As far as electric railways are in control, it is evident that the greater portion of this trackage is operated exclusively by electric power. In some instances, however, the steam railroads do not surrender entire possession of the track to the electric railways, and hence a certain but unknown amount of such trackage is operated by both steam and electric motors of one kind or another.

At the census of 1907 the electric railways reported a total of 105.06 miles of track operated by steam motive power. This total mileage is itemized by companies as follows:

STATE.	Name.	Miles of steam trackage.	Used also for electric traction.
Total.....		105.06	
Alabama.....	Birmingham and Gulf Railway and Navigation Co.	11.00	No.
Indiana.....	Evansville Suburban and Newburgh Ry. Co.	3.25	No.
Iowa.....	Waterloo, Cedar Falls and Northern Ry.	20.39	No.
Massachusetts.....	New York, New Haven and Hartford R. R. Co. (Nantasket division)	0.43	
Nebraska.....	Sioux City, Crystal Lake and Homer Ry. Co.	4.50	No.
New York.....	South Brooklyn Ry. Co.	2.05	
North Carolina.....	Laurel Park Street Ry. Co.	1.50	No.
Ohio.....	Ohio Electric Ry. Co.	42.00	No.
Pennsylvania.....	Philadelphia and Western Ry. Co.	0.33	
Pennsylvania.....	Pittsburgh Railways Co.	8.06	
Pennsylvania.....	Mt. Penn Gravity R. R. Co.	5.50	No.
Washington.....	Puget Sound Electric Ry.	6.05	

It was impossible, in some of these cases, to determine definitely whether or not and to what extent this trackage was also used by the electric cars. It must not be understood, however, that the trackage shown for these companies represents the entire system, as only in the roads enumerated in Alabama, Nebraska, and North Carolina does the steam trackage represent the entire trackage of the company.

Although the Evansville Suburban and Newburgh Railway Company of Indiana reported only 3.25 miles of steam trackage, at times steam traffic is operated over their entire line; and in like manner, although the Great Falls and Old Dominion line of Virginia does not return any trackage as steam, it is nevertheless true that steam traffic is at times operated over the entire length of the road. The steam traffic shown for street and electric railways does not represent all the traffic carried by steam motive power, as the locomotives of the Toledo and Western of Ohio and of other electric companies handle freight cars over their electric lines.

In connection with the steam trackage of street and electric railways it is interesting to note that several companies report steam locomotives as a part of their rolling stock. These are shown in the following statement:

Electric railways reporting steam locomotives: 1907.

STATE.	Name.	Number of steam locomotives.
Total.....		92
Alabama.....	Birmingham and Gulf Railway and Navigation Co.	3
California.....	Northern Electric Ry. Co.	3
California.....	Pacific Electric Ry. Co.	2
California.....	Los Angeles Pacific Co.	3
Colorado.....	Denver and Northwestern Ry. Co.	2
Idaho.....	Boise and Interurban Ry. Co. (Ltd.)	1
Illinois.....	Aurora, De Kalb and Rockford Electric Traction Co.	1
Illinois.....	St. Louis, Decatur and Champaign Ry. Co.	1
Illinois.....	Sterling, Dixon and Eastern Electric Ry. Co.	1
Illinois.....	East St. Louis and Suburban Ry. Co.	2
Illinois.....	Rock Island Southern R. R. Co.	1
Illinois.....	Bloomington, Pontiac and Joliet Electric Ry. Co.	1
Indiana.....	Fort Wayne and Springfield Ry. Co.	1
Indiana.....	Evansville Railways Co.	1
Indiana.....	Evansville Suburban and Newburgh Ry. Co.	3
Indiana.....	Fort Wayne and Wabash Valley Traction Co.	2
Indiana.....	Indianapolis and Cincinnati Traction Co.	2
Iowa.....	International Ry. Co.	1
Iowa.....	Waterloo, Cedar Falls and Northern Ry.	4
Kansas.....	Union Traction Co.	1
Massachusetts.....	Haverhill and Amesbury Street Ry. Co.	1
Michigan.....	Detroit and Port Huron Shore Line Ry.	2
Nebraska.....	Sioux City, Crystal Lake and Homer Ry. Co.	1
New York.....	Eastern New York R. R. Co.	1
New York.....	Fonda, Johnstown and Gloversville R. R. Co.	1
New York.....	Keseeville, Ausable Chasm and Lake Champlain R. R. Co.	1
New York.....	Interborough Rapid Transit Co.	8
New York.....	Brooklyn Union Elevated R. R. Co.	5
New York.....	Marine Ry. Co.	1
North Carolina.....	Laurel Park Street Ry. Co.	1
Ohio.....	Ohio Electric Ry. Co.	2
Ohio.....	Toledo, Port Clinton and Lakeside Ry. Co.	1
Ohio.....	Toledo and Western R. R. Co.	1
Ohio.....	Youngstown and Southern Ry. Co.	1
Oregon.....	Portland Railway, Light and Power Co.	3
Pennsylvania.....	Pittsburg and Butler Street Ry. Co.	1
Pennsylvania.....	Philadelphia and Western Ry. Co.	1
Pennsylvania.....	Pittsburgh Railways Co.	4
Pennsylvania.....	Mt. Penn Gravity R. R. Co.	1
Utah.....	Garden Rapid Transit Co.	1
Virginia.....	Richmond and Chesapeake Bay Ry. Co.	1
Virginia.....	Virginia Passenger and Power Co.	1
Virginia.....	Great Falls and Old Dominion R. R. Co.	3
Washington.....	Spokane and Inland Empire R. R. Co.	6
Washington.....	Pacific Traction Co. of Maine	1
Wisconsin.....	Milwaukee Electric Railway and Light Co.	6

The companies reporting steam locomotives do not agree, however, with the companies operating steam trackage or leasing tracks from steam railways, as steam locomotives are often used by electric railways on construction or work trains, and are therefore not a factor in the traffic of such roads.

The stage of transition.—The adoption of electric motive power as a substitute for steam is shown by

this report to have entered upon a very interesting and important stage. The change from one method of propulsion to the other is determined by a great variety of conditions—some financial, some economic, and some of a social nature. Two of the governing factors in recent years have been the determination on the part of citizens in great cities to tolerate no longer the noise and smoke associated with the use of steam locomotives within urban limits, and the great desire of the railroads themselves to find better methods for handling their terminal traffic than are afforded by steam. A notable influence in deciding the trend of events has been the extraordinary development throughout the United States of interurban electric-railway systems, many of which under former conditions would have been operated by steam and others would not have existed. The general success of these systems in handling passenger and freight traffic, comparable with that of many long lines of steam railroads, has established beyond contradiction the ability of electricity to grapple with some of the hardest problems encountered in the field of main-line transportation; and both in Europe and America to-day the problem is being rapidly worked out, although along different lines of experiment and practice. The general results attained will best be understood from a consideration of leading typical instances.

Methods of New York Central.—Probably the most striking illustration of the change is that furnished by the New York Central and Hudson River Railroad Company in equipping its New York terminal with electric locomotives for through traffic and with motor cars for the suburban traffic. The electric zone of the New York Central is to continue for a distance of 34 miles on the main line from the Grand Central Depot to Croton, and for 24 miles out on the Harlem division, but up to date goes only to High Bridge and Yonkers. As they enter this electric zone, all the through passenger and mail trains drop their steam locomotives and are brought to the terminal by electric locomotives or motors. Each of these electric locomotives, hauling a total train weight of 435 tons, is capable of making the run from Croton to the Grand Central Station, without stopping, in forty-four minutes; or a train weighing 875 tons, drawn by two of the locomotives, averages from 60 to 65 miles an hour and can attain a speed of over 80 miles. The weight of these locomotives is 97 tons, with a total rated capacity, as a unit, of 2,200 horsepower, while the largest steam locomotives built, up to the end of 1907, weighed about 300 tons and gave a sustained output of 2,180 horsepower. On account of this limited output the cost of steam locomotives for a certain gross annual ton mileage may be even greater than the cost of the electric units replacing them. The electric locomotive of the New York Central has four driving axles, on each of which is mounted the armature of a direct-current electric motor of 550 horsepower; the maxi-

mum tractive drawbar pull is 34,000 pounds and the tractive pull per ton of engine weight 330 pounds. The locomotive has eight 44-inch drive wheels and four 36-inch truck wheels, a drive-wheel base of 13 feet and a total wheel base of 27 feet. The pressure of current supplied is 600 volts and the normal full-load current 3,050 amperes.

Current is derived from a third rail placed alongside the track in the manner noted elsewhere in this report, third-rail shoes, four of which are placed on each side of the locomotive, making contact with the rail. In the yards at the terminal, however, the large number of switches and crossings necessitates, in places, an overhead structure; and there additional contacts mounted on top of the locomotive are used.

The heavy traffic with the electric locomotives arrives at the New York Central Depot on one level and the large suburban traffic, for which motor cars and trailers are used, on a lower level. The first equipment of suburban rolling stock for the New York Central included 125 motor cars with 2 motors, mounted on the same truck, on each car, the machines being rated at 200 horsepower each. An average suburban train of the old steam type with locomotive and 6 loaded cars weighs 700,160 pounds, while the electric train of equal seating capacity, composed of 4 motor cars and 2 trailers, weighs 621,360 pounds, or a lighter weight, for the electric train, by 39.4 tons.

This pioneer installation was begun on the New York Central system in December, 1906, and has been in complete and successful operation since July, 1907. In discussing the subject before the American Institute of Electrical Engineers, in November, 1907, Vice-President Wilgus, of the New York Central Railroad, said: "The working, side by side, of both kinds of motive power has given unsurpassed opportunity for the observation of their comparative capacities and efficiency. The results are even more gratifying than were expected, and substantiate many of the claims of the superior capacity of electric equipment." Mr. Wilgus said also that the net result of all the economic advantages of electrical operation over steam, for the conditions existing on the New York Central, would, after including all elements of cost of additional plant, show a saving in the summer months of from 12 to 27 per cent, depending upon the character of the service, while even a larger saving might be expected under winter conditions; that because of less cost of maintenance of electric equipment and less idle time in the repair shops, the greater cost of extra charges and depreciation for the system was not only neutralized, but a net saving of 19 per cent on repairs and fixed charges over steam equipment was effected; that electric-locomotive inspection and lighter repairs, as compared with coaling, watering, drawing fires, repairs, etc., of steam locomotives showed a saving in time in favor of electricity of more than four hours per day, equal to 18 per cent; and that the electric locomotive, when busy,

was a much more nimble and efficient machine than the steam locomotive, showing an increase in daily ton-mileage of 25 per cent. The question of locomotive weight is a large factor in a comparison of relative economies in handling passenger traffic by steam and by electricity, and in the switch service at the Grand Central terminal 65 per cent of the total steam ton-mileage was due to locomotive or dead weight, while the electric-locomotive percentage was but 54 per cent—a saving for the latter of 11 per cent. In the regular schedule service Mr. Wilgus stated that the steam locomotives showed 51 per cent dead ton-mileage, as against 35 per cent for the electric equipment, a saving for the latter of 16 per cent. With regard to the speed advantages of electric locomotives it was pointed out that this advantage was perfectly apparent in the New York Central installations, where the increase in coal consumption for car ton-mileage in high-speed service, as compared with slow-speed service, was shown to be 165 per cent; whereas, under exactly the same conditions, the increased consumption of current for electrical equipment was only 18 per cent, an economic difference, in favor of electrical operation, of 147 per cent.

In connection with this radical change on the New York Central it should be pointed out that the adoption of electricity in the operation of the road has, in a sense, carried with it the complete reconstruction of the Grand Central terminal as a whole, with the building of a new double-level station for the reception and dispatch of trains; the reconstruction of cross streets over the depressed electrified tracks; the installation of power plants to supply the electrical energy; extensive systems of substations and transmission lines; and the development of a third-rail distributing system throughout the electrified zone. There has also been required the organization of an electrical department, with a chief engineer of electric traction, reporting to a responsible vice-president in general charge of the whole work.

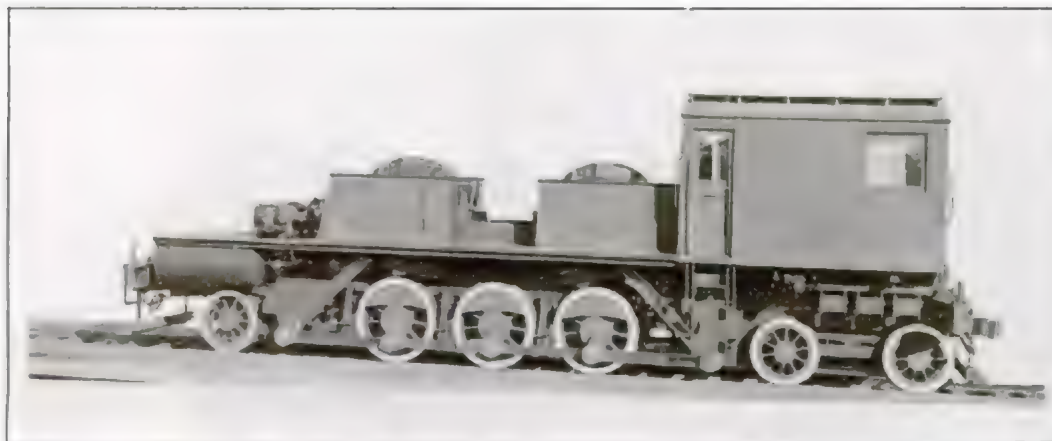
New York Central power plants.—Two power plants have been built to furnish current to the electrical zone of the New York Central, one located at Port Morris, on the eastern side of New York City, and the other at Yonkers, on the Hudson River, feeding in from the western side. These stations are practically duplicates, each having an ultimate capacity of 30,000 kilowatts of electrical energy at full rating. The Port Morris station was put into service in May, 1906; the first train over the system was run in July of that year; and the first regular train entered the Grand Central station on December 11. Since July 1, 1907, all the New York Central trains in and out of the Grand Central Depot and the adjacent Lexington avenue temporary terminal have been electrically operated.

The Port Morris station, which may be taken as typical of both plants, is 237 feet long, 167 feet wide, and 105 feet high, with smokestacks 250 feet above

the grates. The turbo-generator room is 231 feet 8 inches long by 69 feet wide, and the boiler room 88 feet wide. At each station all high-tension switching is accomplished in a separate switch house—the one at Yonkers being combined with a rotary-converter substation. The equipment at Port Morris includes four 5,000-kilowatt vertical turbo-generator units, 3-phase, developing alternating current at a frequency of 25 cycles and at 11,000 volts. Six such turbines constitute the ultimate station equipment; but it is an interesting fact that the requirements for electrical energy for train operation have fallen below the estimates, thus giving the plants, as they stand, a much greater capacity for caring for the duties imposed upon them than was anticipated. A typical midday load curve taken at the Port Morris power station on August 7, 1907, showed an average load during the day of 3,000 kilowatts. The minimum load was 1,000 kilowatts and the maximum load was 6,600 kilowatts, which occurred during the evening rush hours of suburban traffic. The corresponding morning peak reached a volume of 5,400 kilowatts. The morning and evening peak loads lasted about three and one-half hours each, while the minimum load lasted about five hours.

The plan of operation of the New York Central for the existing electrical zone is based upon delivery of current to 8 substations, equipped with three rotary converters, each of 1,000 or 1,500 kilowatt capacity, depending upon the local circumstances. Each substation, in addition to the provision of apparatus for receiving the high-tension current and converting it to direct current of 666 volts for delivery to the third rail, is furnished with a storage-battery equipment of sufficient capacity to operate the service with maximum train-load requirements for about half an hour. Each substation can be fed from either power station, and the transmission lines are so disposed that no ordinary accident can cut off a substation from one or the other source of power supply. It is obvious that in a great transportation system of this kind the precautions against interruption can not be too careful or too minute, and the system is designed to give the greatest possible protection against breakdown.

In order to provide against interruption in the substation itself, the following general principles of design were adhered to: The path of the current was made as short and straight as possible from the high-tension transmission line through the substation to the direct-current feeders; the wiring is as little exposed as possible, yet is readily accessible to the substation employees; all the machinery is on the same floor with the operating switchboards; the principal apparatus is under the direct control of the operator while standing at the switchboards; all the equipment is so arranged as to limit the effect of an accident to the spot where it occurs; the operator is safeguarded as much as possible, and the risk of accident to him is



NEW YORK CENTRAL SIDE-ROD ELECTRIC LOCOMOTIVE.



FIRST ELECTRIC TRAIN LEAVING GRAND CENTRAL STATION NEW YORK WITH DIRECT CURRENT LOCOMOTIVE.

minimized; and finally, the substations are all of strictly fireproof construction. The whole system is interwoven with an independent telephone system, while there are also connections with the regular telephone system and exchanges within the electrical territory. The system, as a whole, from the busbars in the power house to the third-rail shoes on the trains, is an organized group of apparatus with systematic interrelation.

The circuits are carried in part overhead along the line of the road, but through the Park avenue tunnel, along the viaduct from the tunnel to Harlem, and through the Harlem depression the conductors are carried in steel pipe, while in crossing the Harlem River the conductors are cable-laid in the river bed.

New York, New Haven and Hartford Railroad.—Next in importance to the work done on the New York Central Railroad in the adoption of electricity is that done by the New York, New Haven and Hartford Railroad Company. While the New York Central has employed direct current, the other system has had resort to the alternating current; so that New York City itself affords examples of both methods, and an excellent opportunity for comparing them in operation and in results. The first electric zone of the New York, New Haven and Hartford Railroad, on which commercial service was begun on July 24, 1907, extends from the Grand Central Depot to Stamford, a distance of 33 miles, and the apparatus has been so devised as to operate upon the direct-current third-rail system near the city and on alternating current with overhead wires from Woodlawn outward. For the electrification of the system 35 locomotives, each furnished with 4 motors of 250 horsepower, normal rating, have been put into use. The motors, of the gearless type, wound and built for a normal speed of 225 revolutions per minute, are permanently connected in pairs and require about 450 volts at the terminals for alternating current and 550 volts for direct current. For local service, each of the locomotives handles a 200-ton train, with stops averaging 2 miles apart, on a schedule of 25 miles an hour, and in order to maintain this average speed the maximum speed per hour is about 45 miles. On through service, owing to the infrequent stops, one locomotive can handle a 250-ton train, while for heavier trains it is the practice to couple two locomotives together and operate them in multiple, 8 cars per locomotive being the maximum number allowed. For regular work over the alternating-current system the locomotives are provided with overhead pantograph trolleys, and each of the two trolleys for such work is able to carry the total line current. Since the introduction of these locomotives, however, various changes and modifications have been made in six new ones, embodying the results of practice and looking to the improvement of the service.

The electrical energy for the service is generated at 11,000 volts, applied directly to the overhead lines of catenary-construction form, described elsewhere in this text. This catenary construction is carried by steel bridges over the tracks, and the current, at high tension, is taken off and received on the locomotive by step-down transformers, which reduce the pressure to the 450 volts required for the operation of the motors. The electric power supplied for the New Haven road is furnished from four 11,000-volt steam turbo-generators, three of which have an electrical capacity of 3,750 kilovolt amperes, single-phase, while the fourth unit consists of a 6,000 kilovolt ampere, 3-phase generator which can also supply single-phase current to the system.

A very interesting report on the operation of the road was presented before the American Institute of Electrical Engineers in 1908 by Mr. W. S. Murray, the electrical engineer of the railroad, who stated that, following the initial operation in July, 1907, local service from Stamford was established in October, and that finally, July 1, 1908, all through and local passenger trains were under electrical schedule between Stamford and the Grand Central Station. Mr. Murray found, by measuring the weight of all the trains in the New Haven service, that the average was 212 tons. If 75 per cent of the service could be handled by locomotives rated upon a basis of 200 tons trailing load, it seemed good engineering to consider that the correct locomotive unit size, and to use two units for the remaining 25 per cent formed by the heavier trains. Practice has shown that 73 per cent of the trains can be handled with single units. From statistics given of a day of heavy traffic it would appear that the electric mileage averaged 34 per cent better than the steam mileage. It is also pointed out that no fatality to the traveling public had happened since the service had been in operation by reason of the high-voltage current used. With regard to the general case as to the use of alternating current, as compared with the direct current and its bearing upon the question of cost, Mr. Murray says in his paper that he has intentionally omitted the discussion of operating costs of a direct-current versus an alternating-current system. But bearing in mind the fact that good engineering means making a dollar earn the greatest interest, it is his belief that in the electrification of steam roads to-day straight alternating-current traction is the agency through which that end can be gained. Experience shows that alternating current is the preferred agent for the transfer of electricity, where either distance or capacity is involved. A railroad involves both. "Granted, therefore, that alternating-current traction apparatus has received the trade-mark of practicability, what further argument does it need in its favor?"

Equipment for the St. Clair tunnel.—Another very interesting type of single-phase railway equipment is

that adopted for the St. Clair tunnel by the Grand Trunk Railroad. The tunnel was opened in 1890 to eliminate the transportation of cars by ferry between Port Huron, Mich., and Sarnia, Ontario. The tunnel is slightly over 6,000 feet in length, and previous to the adoption of electricity was operated by means of steam locomotives especially constructed to burn anthracite coal. Although these locomotives rendered satisfactory service, it was found desirable to substitute electric locomotives for them in order to remove the limitations of haulage capacity over the single track in the tunnel and to obviate the danger and inconvenience due to locomotive gases in the tunnel. The work on the tunnel was finished during 1907 and the locomotives went into service early in February, 1908. The tunnel is now clean, well lighted, and safe to work in, and trains of much greater length than formerly can be hauled, thus relieving the congestion in the freight yards on both sides of the river.

The power house is situated on the Port Huron, Mich., bank of the St. Clair River, and is equipped with two 1,250-kilowatt, 3-phase, 25-cycle, 3,300-volt steam turbo-generators. The high-tension voltage is applied directly to overhead lines and is stepped down by transformers for the motors. The trolley system is fed through a vertical shaft, which extends to the tunnel at a point just outside the power house, and no additional feeders are required. The overhead-contact conductor system is of the single catenary type, a messenger or supporting cable of $\frac{3}{4}$ -inch of heavy galvanized steel being suspended on the insulators fastened to the overhead bridges immediately over the center lines of the tracks. The working conductor is supported by the messenger cable at a height of 22 feet above the top of the rail.

The traction equipment comprises 3 locomotives, each built in two half units, so that each can be operated alone. Each half unit is driven by 3 single-phase conductively compensated series motors having a rating of 250 horsepower, so that the total power capacity of the complete locomotive is 1,500 horsepower. Each complete locomotive is designed to develop a drawbar pull of 50,000 pounds at a speed of 10 miles per hour and is operated at a speed not to exceed 30 miles per hour. It is estimated that each is capable of starting a 1,000-ton train on a 2 per cent grade.

Cascade tunnel of Great Northern.—Another of the main railroad systems that has taken up electricity is the Great Northern, which has introduced 4 locomotives for hauling trains through the Cascade tunnel, which is somewhat less than 3 miles in length and has a uniform grade of about 1.7 per cent. These locomotives are of the 3-phase alternating type, with double truck, and 2 motors to each truck. Each locomotive is equipped with 4-wheeled trolleys, somewhat similar to those employed on street cars, 2 of which are used for operation in each direction, the rail being employed as the third or return conductor. The current is supplied to the overhead line at 6,600

volts and is lowered to 500 volts by the transformers on the locomotive for use at the motors. The gearing of the locomotive is such as to give a speed of 15 miles, which is maintained on the up grade and only slightly exceeded on the down grade. In the event of the satisfactory operation through the Cascade tunnel, other grades in the vicinity will also be operated electrically.

Baltimore Belt Line tunnel.—One of the earliest of the main lines of steam railroad to substitute electricity for steam was the Baltimore and Ohio system, which has now been in operation for some years, using the equipment in the Baltimore Belt Line tunnel. At first 3 locomotives, each weighing 96 tons and equipped with 4 direct-current motors rated at 360 horsepower, at 300 volts each, were employed, and were found to greatly ameliorate the conditions connected with the operation of the tunnel, as well as to improve the general service. As originally designed, these locomotives took current from an overhead trolley at about 625 volts, various forms of trolley being employed; later, however, it was deemed more economical and efficient to employ a third-rail system. The results obtained with the locomotives more than met the most sanguine expectations. It was found that one locomotive could accelerate a loaded train equivalent to 52 freight cars having a total weight of 1,900 tons. This acceleration was accomplished smoothly on a grade of eight-tenths of 1 per cent, and the train finally brought up to a speed of 12 miles per hour. The drawbar pull exerted during acceleration was 63,000 pounds, and the current taken at 625 volts during acceleration was 2,200 amperes, steadying down at constant speed to 1,800. It was finally decided to use even larger locomotives, which are now in commercial service and are among the most powerful in the world. On account of their extreme size they were built in two separate units of 80 tons each, each unit having 4 motors of 200 horsepower, giving a normal rating of 1,600 horsepower for the complete locomotive. At this rating each locomotive is capable of accelerating, on a level, a train weighing 3,000 tons with a current consumption of 2,200 amperes, or on a 1 per cent grade a 1,400-ton train, to a speed of 10 miles per hour, the current at this speed being 1,600 amperes. The free-running speed of the locomotive without train is about 24 miles per hour.

Multiple-unit system.—The work thus far considered in the transition on main lines from steam to electric power has dealt with the adoption of locomotive methods, in which, so far as the train is concerned, practically all the older ideas remain unchanged. In other words, with electric locomotives, as with steam, the train, in charge of a regular train crew and consisting of a given number of cars, is made up with the propelling power in a large unit at the head of the train. All the functions of propulsion relate to the locomotive, and the cars are simply so many trailers. On the through lines of the New York Central and on the



NEW YORK, NEW HAVEN AND HARTFORD ALTERNATING-CURRENT LOCOMOTIVE.



PENNSYLVANIA RAILROAD ALTERNATING-CURRENT LOCOMOTIVE.

service of the New Haven roads the locomotive system, identified with seventy-five years of practice, is essentially the same now as before the adoption of electricity; but on other roads and on electric divisions of steam railroads the transition has brought with it revolutionary changes rendering the service analogous to that of interurban electric-railway lines and to street-car practice in general. In other words, the motive power, instead of being concentrated in one unit at the head of the train, is distributed throughout the train in a number of smaller units; and a train is made up either entirely of motor cars or of motor cars interspersed with trailers; this being the practice on all the elevated and subway lines now in existence in this country. While, in the newer methods, the motive power is distributed throughout the train, it is usually, by means of the multiple-unit system, subject to the controlling operation of one motorman. This enables a train to be built up of any number of units, according to the exigencies of the load, the needs of traffic, and other conditions.

Rochester division of Erie Railroad.—One of the most important electric-railway developments in respect to the abandonment of the locomotive principle is that on the Rochester division of the Erie Railroad, where the change took place in June, 1907. It is believed to be the first system to install a single-phase alternating-current system of electric motive power upon a steam railroad of any kind, and also the first to apply several other important features, among which were the use of 11,000-volts working pressure commercially on a trolley-contact system, and a single-phase traction system receiving its current from a 60,000-volt transmission line.

The section of track thus equipped is 34 miles long, from Rochester, N. Y., to Avon, a distance of 19 miles, and continuing thence 15 miles over the Mount Morris branch. The railroad is entirely single track, with sidings at way stations 3 or 4 miles apart. The line is relatively straight, with long tangents, easy curves, and low grades, but it has a number of bridges, including one that is 700 feet long over the Genesee River, about $1\frac{1}{2}$ miles south of Rochester. The track was laid originally with 68-pound rails, but for electrification was relaid with 80-pound rails. The roadbed is ballasted with gravel, and a single No. 00 protected copper rail bond is applied to each rail joint under the plate, one of the advantages of the high-tension single-phase system being that the relatively small current combined with the high impedance of the main circuit renders it unnecessary to resort to heavy bonding.

The old steam service between Rochester and Mount Morris comprised three round trips daily for passenger service, to which the electric system is devoted solely, the freight service, as well as the through trains between Rochester and Corning over the main line of the Rochester division, a distance of about 94 miles, being handled by steam as heretofore. Instead of the former three round trips per day, the electric

service has given six complete round trips between Rochester and Mount Morris, and three more between Mount Morris and Avon. The flexibility of the service is shown in that the trains can be made up in any number of units from 1 to 4. The equipment permits of single-car trains traveling with one stop per mile over the entire road at an average speed of 24 miles per hour, or 1 motor car can haul 1 trailer, making stops about $2\frac{1}{2}$ miles apart, at the same schedule speed. It has been found, too, that the electric trains can be depended upon to keep their running time better than the steam passenger and freight trains operated over the main line. A single passenger coach is frequently attached to a motor car and on such trains baggage, milk, or mail cars are regularly hauled. When 2 trailers are employed, 2 motor cars are required, making up a 4-car train, corresponding roughly to a regular locomotive train with its baggage car, smoking compartment, and other features. Since the service was introduced it has become very popular throughout the Genesee Valley and has been improved from time to time.

The motor cars initially employed, 6 in number, were 51 feet 4 inches over bumpers, 8 feet 9 inches wide over sheathing, and 13 feet $8\frac{1}{2}$ inches in height above the rail. Four of these cars had two passenger compartments, and the other two a baggage compartment about 14 feet long, with a small smoking compartment, besides the regular passenger section—an arrangement which corresponds closely to that found in ordinary interurban practice described elsewhere. The electrical equipment of the cars which are electrically lighted and heated consists of 4 single-phase motors with a normal rating of 100 horsepower each.

The circuits are carried by chestnut poles averaging 25 inches in circumference at the top, 42 inches at the butt, and most of which are about 33 feet long, although 40-foot poles are used where the embankments are narrow and steep, and for span construction. Nearly all the overhead construction is of the bracket type. The trolley, which is of the pantograph form, is raised and held against the wire by means of springs and lowered by the application of air pressure through a piston working in a cylinder which forms part of its base. The electrical energy employed is generated at Niagara Falls in the plant of the Ontario Power Company, at the foot of the Great Horseshoe, and is transmitted at 60,000 volts, 3-phase, over the line of the Niagara, Lockport and Ontario Power Company, being received by a substation where the high-tension current from the transmission line is made available for single-phase distribution by means of three transformers of oil-insulated water-cooled type, each of 750-kilowatt capacity, from which the 11,000-volt current goes to the railroad line. Provision has been made so that in case of development an extension of 40 or 50 miles to another substation could be cared for.

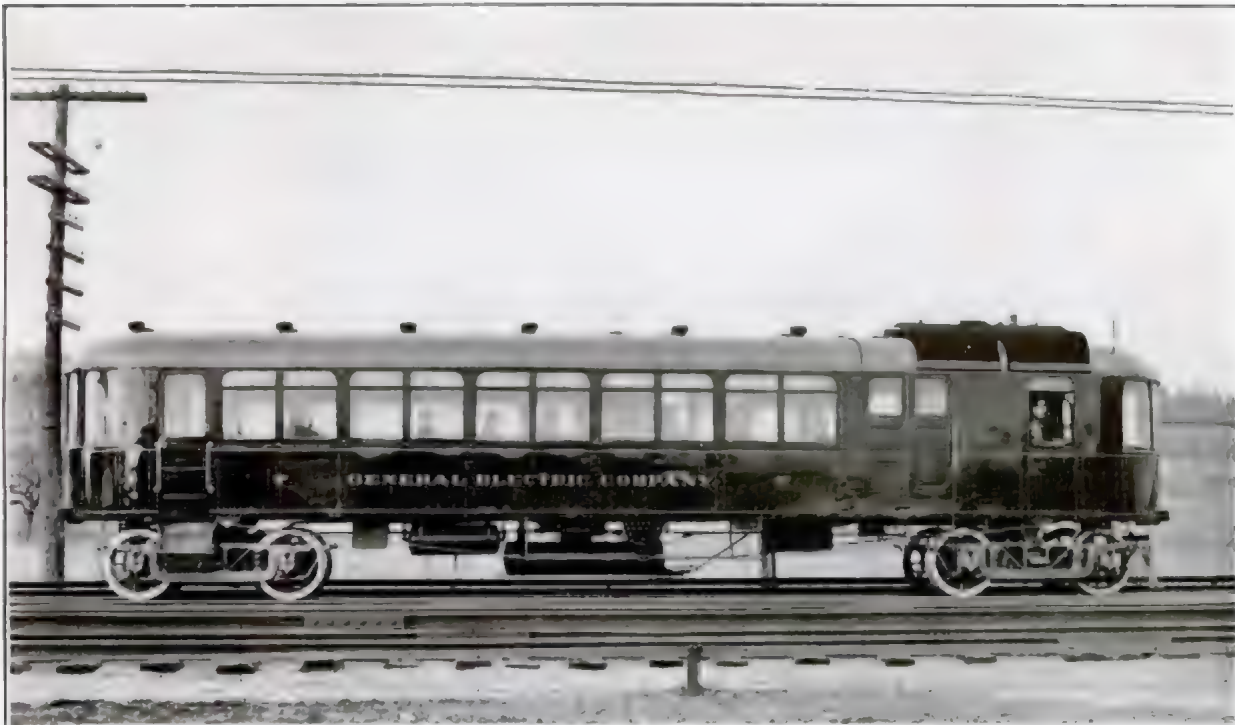
During the time covered by the census period the daily electric train mileage was 500 miles on week days and 400 miles on Sundays. The schedule was somewhat irregular, but on week days approximated a two-hour service for twelve hours a day. The train crew of single cars consisted only of a motorman and a conductor, as on ordinary street cars, but two-car trains carried a brakeman in addition, and a brakeman was always carried when baggage was handled. The electrical division is, as has been noted, operated as a portion of the Rochester division, and has the same management, except that the electrical work is in charge of a supervisor of the electrical service. Although in 1907 the cars were operated, under ordinary conditions, over a period of only fifteen hours a day, current was left on the trolley continuously. Cars were brought in for inspection on an 800-mile basis and thoroughly overhauled; and it was found that about 10,000 miles of wear was secured from the pantograph trolley shoes, which are lubricated with graphite and gasoline once a day. At first these shoes were of copper, but steel shoes have since been substituted.

The electric division is operated and protected by a positive manual block-signal system, working in accordance with the code of the American Railways Association. There are in all 11 signaling stations, and the blocks are consequently about 3 miles long. The telephone instead of the telegraph or bell-signal system is used for communication between the signaling stations, so that there is no necessity for the tower-men to be telegraph operators. The telephone is not employed in giving train orders, and where it is necessary, for any reason, to give orders of this kind, they are received by a motorman, engineer, or conductor at regular way stations from the telegraph operators at those points. The operation of trains is in charge of a chief dispatcher at Rochester, who supplies the motorman or engineer with train orders which, under ordinary conditions, block the train through. The block operators know the train schedule, and as the time for a train draws near each operator telephones the next operator ahead asking whether or not the block is clear. The first operator sets his signal in accordance with the reply, and if the block is clear, the second one sees that the stop signal is set for all possible trains. The signal, however, returns automatically to the stop position. Special trains over the circuit are blocked through in the same manner.

Long Island Railroad equipment.—Another extensive railroad system which has already adopted electricity over a considerable portion of its line is the Long Island Railroad, controlled by and forming an integral part of the Pennsylvania Railroad system, with which it is being connected by tunnels under Manhattan Island, the East River, and the North River. This electric system went into full operation during the census period, and has been steadily extended. At the close

of 1907 the electric equipment consisted of 130 steel-motor passenger cars, 5 express cars, and 1 rotary snowplow, supplemented by 55 wooden trailers, which had been wired for electric lights and electric heaters. The electric express cars are provided with truck motors and controllers, identical with those employed in the steel passenger cars. These steel cars resemble closely those employed in the New York subway, and are 51 feet 2 inches long over bumpers and 8 feet 5½ inches wide over the side sills; the motor and trailer trucks have wheel bases of 6 feet 8 inches and 5 feet 6 inches, respectively; and the wheels of the motor truck are 36 inches and those of the trailer truck 30 inches in diameter. Two motors of 200 horsepower each are mounted on a motor truck, and are operated by means of electro-pneumatic controllers. The current is taken up as described elsewhere by means of the third rail and the contact shoes.

The power plant of the system, operated by what is known as the Pennsylvania Tunnel and Terminal Company, is situated on the eastern bank of the East River at Long Island City, and the output of the station is purchased by the Long Island Railroad for its electric-traction work. The power plant is designed for six 5,500-kilowatt turbo-generators, of which three were installed at the close of 1907, when there were approximately 19 miles of protected third rail to be fed with current. There were 6 substations; and 2 portable substations, which can be shifted to any part of the system. Between the power house and Woodhaven Junction there is a direct transmission line, partly underground and partly overhead, consisting of 5 circuits. At that point the transmission circuits go in three directions to the various substations, east, west, and south, being carried partly overhead and partly underground. The overhead circuits are carried part of the way on lofty steel towers and for the remainder of the distance on wooden poles. Very little trouble has been experienced with the overhead line. The underground high-tension circuits consist of 3-conductor, paper-insulated, lead-covered cables placed in a conduit system provided with man-holes at frequent intervals. At two points on Jamaica Bay, where the line crosses to Rockaway Beach and Far Rockaway, and where steam trains are also operated, there are drawbridges which necessitate the use of submarine cables. Current is generated by the 3-phase generators, rated to develop 5,500 kilowatts at 175 pounds steam pressure. This current is received at the substations from the transmission lines and transformed and delivered as direct current to the third-rail system. These substations are equipped with storage batteries as provision against interruption of service. An interesting feature is the use of the portable substations, rendered necessary by the extremely heavy but infrequent loads incident to the service of the race tracks along the system during the season at Belmont Park and at the Metropolitan race



SELF-CONTAINED GASOLINE ELECTRIC LOCOMOTIVE.



ELECTRIC LOCOMOTIVE FOR GREAT NORTHERN RAILWAY.

track south of Jamaica. These two portable substations consist each of a 1,000-kilowatt rotary converter, with transformer, switchboard apparatus, and the necessary auxiliaries carried in a heavy steel car resembling a freight car in outward appearance. These substations are permanent, to all intents and purposes, and tap from the transmission lines enough electrical energy to take care of the unusual train movement at the points indicated.

West Jersey and Seashore Railroad.—The West Jersey and Seashore Railroad operating between Camden and Atlantic City is a division of the Pennsylvania system which was previously operated by steam, but which, since July, 1906, has been under electrical power. The distance is about 75 miles, including 65 from Camden to Atlantic City, and 10 from Newfield to Millville. The contract included the erection of a power house and 8 substations, one of which is located within the power house; the electrical equipment of about 150 miles of single track almost entirely with the third-rail system; the building of 71 miles of high-tension transmission line, in duplicate as a precaution of safety; and the electrical equipment of 68 cars. At the time the work was done the contract called for the electrification of a main line double-track steam railroad from terminal to terminal, of a greater length than any steam road previously electrified in this country; but it is to be observed that this work also included the radical departure from antecedent methods, namely, the abandonment of the locomotive principle and the adoption of the system of power distributed through the train.

The Pennsylvania Railroad Company has two roads connecting Camden with Atlantic City, and it is the longer of these that is now electrified, as there is a local traffic on this longer route which can be handled more economically and expeditiously by electric than by steam traction. From the Camden terminal to Newfield the road is laid with 100-pound steel rails of Pennsylvania Railroad standard cross section, and from Newfield to Atlantic City with 85-pound rails of American Society of Civil Engineers section. For the entire distance the road is equipped with a third rail, with the exception of a short stretch of track about $4\frac{1}{2}$ miles in length from Haddon avenue to South Gloucester, at the northern end of the system, where the tracks pass through the city streets at grade, and are furnished with overhead trolley wires. At the southern end, about 2 miles from Atlantic City, a new right of way was secured and, after crossing a public thoroughfare on a new drawbridge, the tracks go above the Philadelphia and Reading Railroad on an elevated structure and enter the Atlantic City terminal on a descending grade. On the section of the line between Newfield and Millville, which is a single-track road, the overhead trolley has been installed and the line is equipped with 100-pound steel rails.

At the time covered by this report the express service to Atlantic City consisted of 3-car trains running on a headway of fifteen minutes in each direction, at a speed, on straight, level track, of 60 miles an hour, the running time being ninety minutes. The local service was provided for by 2-car trains between Camden and Millville, running at half-hour intervals, and single cars between Camden and Woodbury at ten-minute intervals. It is understood that the general service has been modified and extended since then, but these provisions give an idea of the flexibility of the service, which includes also baggage and mail cars, as required. Each car in the electric system is a motor car, no trailers being used.

The rolling stock called for by the first contract, as already noted, comprised 68 cars, of which 63 are straight passenger and 5 are combination baggage and mail. Each car carries two 200-horsepower motors with automatic multiple-unit control. The controllers are so arranged that, should the motorman for any cause release his hold on the controller handle, the current is cut off from the motors throughout the train, and the brakes are applied automatically. The cars are heated and lighted electrically, and have general dimensions of 55 feet $5\frac{1}{2}$ inches over buffers, 44 feet 6 inches length over body and sills, a height from the top of the rail to the top of the roof of 13 feet $3\frac{1}{8}$ inches, and a weight, fully equipped on the track, of 89,000 pounds. Each passenger car has a seating capacity of 58 persons.

Electrical energy is furnished to the system from a power house at Big Timber Creek near Westville, N. J., $5\frac{1}{2}$ miles from the Camden terminal, where there is an abundance of water for boiler feed and for condensing purposes. It comprises three 2,000-kilowatt, 25-cycle, 3-phase, 6,600-volt turbo-generators, with the ordinary full equipment of station regulating and controlling apparatus. The high-tension 3-phase current is converted to direct current in the 8 substations at 650 volts, and thus delivered to the third rail; the equipments of the different substations vary in capacity according to the requirements of the section of the road that they supply.

Electric traction on West Shore Railroad.—A further exemplification of the change from steam conditions and the abandonment of the locomotive idea is furnished in the electrification of the West Shore Railroad tracks between Utica and Syracuse, N. Y. The electric equipment of the line was done by the Oneida Railway, which operates the electric rolling stock. The conditions here again are interesting, as illustrative of the pressure brought to bear upon the steam railroads by the invasion of competing trolley lines. A large number of independent trolley systems having sprung up throughout the state of New York, they soon brought a keen competition to bear upon the

steam railroads for two classes of business, the local passenger traffic and the light-freight traffic, while some of the contiguous lines were formed into a chain or system paralleling the tracks of the steam roads all the way from Albany to Buffalo. For strategic considerations and for the protection of their traffic, the steam railroads deemed it their best policy to secure some kind of control over these competing electric lines and adopt kindred methods, with the result that such steam roads or divisions, where the capacity of traffic was not fully utilized, have been electrified or are now going through that process. These old steam roads, thus changed, form a connecting link, so to speak, between the steam lines proper and the auxiliary trolley network. The electrification between Utica and Syracuse is an important piece of work of this character. The road was formerly double track under steam conditions, but to accommodate the different classes of service a third supplementary track has been provided between Clark Mills and Vernon, near the Utica end, to allow the faster units to pass the local trains. In like manner, between Oneida and Canastota, at the middle of the division, a fourth track has been laid to permit the electrical units to pass steam trains that may be held at that section, owing to the presence there of water stations and freight yards. The distance between the terminals is slightly over 44 miles, this mileage being composed of 2, 3, and 4 tracks, making a total of a little less than 106 miles, laid throughout with 80-pound rails.

The new service, while subject to steam-railroad conditions, owing to the intermingling of trains, is novel in many respects, as the electric cars, after leaving the main tracks, run through the city streets and give practically a block-to-block service, like ordinary street cars. Moreover, under steam conditions, only two passenger trains were run daily in each direction between Syracuse and Utica, while the two trains of sleepers passing over the tracks at night were of practically no use to the residents of the cities traversed. Under the new conditions there is a fast limited service of cars or trains leaving each terminal hourly making two stops en route and completing the journey in one hour and twenty-eight minutes. There are local cars or trains which make a schedule speed of 24 miles an hour and complete the run in one hour and fifty-eight minutes, providing also an hourly service from each terminal, with as frequent stops as may be required by the passengers aboard. There is also a fast steam freight service.

The road started with an equipment of 15 cars, each having 4 motors of a capacity of 75 horsepower, the cars being made up into trains to suit requirements. Each car has a length, over buffers, of 49 feet; a width, over all, of 8 feet 9 inches; a height, from top of rail to top of trolley board, of 12 feet 11½ inches; a weight of 79,780 pounds; and a seating capacity of 52 persons. As already noted elsewhere the line is equipped

with a third rail for underrunning contact of the same nature as that employed on the electrified zone of the New York Central. Electrical energy is to be supplied to the system from transmission lines, at a pressure of 60,000 volts, by the Hudson River Electric Power Company, whose transmission system is 100 miles in length, extending from Spiers Falls to Utica. The high-tension 3-phase current is reduced in pressure and converted to direct current of 600 volts at 4 substations distributed along the line at an average distance apart of 10½ miles.

Types of electric locomotives.—The subject of electric-locomotive design is incident to the change that has been going on in the adoption of electricity by steam railroads, and various types have been noted in the course of this chapter. In order to get a clearer view of the steps taken, it may be pointed out that the first large electric locomotives, designed and built specifically for high-speed electric traction, as distinguished from those built for low-speed work, as on the Baltimore and Ohio road, were used in the New York Central service. These were a radical departure, in most respects, from any steam or electric machines previously built for such service. They had a long, rigid wheel base with four driving axles and a radial pony truck at each end; the motor armatures were built up solidly on the driving axles, while the motor field magnets and frame were supported on the locomotive framework. The driving wheels were only 44 inches in diameter, and were not connected with side rods or by any other means. In the original experimental locomotives of this type there were springs fitted on the side of the driving-axle boxes to absorb the side shocks, but in the locomotives built soon after, under contract, these were omitted.

The next general large type for high-speed work was that of the New York, New Haven and Hartford system, with two separate 4-wheel trucks, carrying a motor on each axle, designed for single-phase work. With the object of relieving the axles of the dead weight of the motor armatures, the latter were carried on pins set into spring pockets in the driving-wheel centers. These locomotives had driving wheels 62 inches in diameter as compared with 44 inches of the New York Central type, but no guiding wheels of any kind, the entire weight being available for adhesion.

Another development was that of the half-unit experimental single-phase locomotive, built in 1907 for the Pennsylvania Railroad, and tested at very high speeds on the West Jersey and Seashore line between Camden and Atlantic City. This type is the exact counterpart of the so-called Atlantic or 8-wheel type of steam locomotive, well known as the general standard for passenger service in the United States. It has two driving axles, wheels 72 inches in diameter mounted in the main frame and a swiveling



STREET SPRINKLER.



TWO UNIT TYPES OF 150-TON LOCOMOTIVES ON BALTIMORE AND OHIO RAILROAD.

4-wheel bogey truck in front, which carries 45,000 pounds, nearly one-third of the total weight. The motor armatures are supported on quills in spring pockets in the driving-wheel centers like those of the New Haven type.

These three general types have served as points of new departure, and modifications embodying more or less radical changes are already seen. The 12 new locomotives for the New York Central have swiveling bogey trucks at each end, instead of a radial pony truck, and the side-thrust springs on the driving-axle boxes, abandoned after their use on the experimental locomotives of 1904-5, have again been adopted. The manufacturers of these locomotives have also built a high-speed experimental locomotive, which was under test during the preparation of this report, and which is of yet another type, having two articulated trucks, each consisting of a pair of pony wheels, at each end and two driving axles in the center. The driving wheels are connected by side rods. The new models of the New Haven locomotives are distinguished by the addition of a single pony axle placed in front of the driving wheels of each motor truck. The addition of these pony wheels, which are equalized with the main driving wheels, has afforded a marked improvement in the riding quality of the locomotive, although making some reduction in the adhesion weight. The tendency, however, appears to be toward a sacrifice of adhesion weight in order to secure better riding qualities.

The gasoline electric locomotive.—An interesting type of locomotive for use on street and main steam railroads should be mentioned, which does not fall within any of the classifications mentioned above, namely, the gasoline electric car. In this car, which is illustrated in the report, a car body of suitable design is mounted upon bogey trucks. The forward truck is equipped with 2 standard electric-railway motors of 100 horsepower each. In the forward compartment of the car is placed the power plant, consisting of a gasoline engine and an electric generator of about 125-horsepower capacity. The power plant consists of an 8-cylinder, 4-cycle gasoline engine, 550 revolutions per minute, direct-connected to an 8-pole, 80-kilowatt, 600-volt commutator pole generator, with a direct-coupled $3\frac{1}{2}$ -watt, 32-volt exciter for the field magnets. There is no mechanical connection between the power-generating plant and the power truck. The energy is transmitted by means of electricity, the current from the generator driving the motors, which are controlled by a device similar to the controller on a trolley car, whereby the car can be started, accelerated, stopped, and reversed by the manipulation of the controller handle. This combination gives great flexibility of control and ease of operation, being simple and economical, and in its effect equivalent to a mechanical connection with a practically infinite number of gear ratios, but without change of gears. The speed

of the car is from 50 to 60 miles an hour, and it can be stopped and reversed without stopping or changing the direction of the rotation of the gasoline engine. The car is arranged for operation either from the self-contained power plant or from 600-volt direct-current overhead-trolley circuits, and can also be adjusted to a third-rail circuit. The car is electrically lighted by 25-volt incandescent lamps and carries a 52-candle-power incandescent headlight. For these, current is supplied from the exciter when the main gasoline engine is running, otherwise from a 12-cell storage battery located under the car body. Automatic means are provided for switching the lights from one system of circuits to the other, and for charging the battery from the exciter. The car body is heated by a system of hot water operated on the thermo-siphon principle, the heat being obtained from the exhausted gases of the engine. This type of car, with steel construction, has been built and successfully operated for commercial service on one or two of the main lines of railroad.

General effect on traction industry.—It will be seen from the foregoing study of the subject that the adoption of electricity has already played an important part on standard railways, and on street and interurban railways where steam locomotives or steam dummies were previously employed. The records of the Bureau of the Census do not include specific data on this point other than those cited above, but a very careful investigation of the subject has been made by Mr. W. J. Clark, electric-railway expert of the General Electric Company, who has compiled two statements on this subject which are deemed appropriate to be given in this report and are reproduced below. It will be seen from the first statement relating to street and interurban railways, that since January, 1888, on 126 roads of that character, 558 steam units have been replaced by electric. It will also be seen, from the second statement of the partial list of the changes of equipment on standard steam railways, that on 24 roads approximately 863 steam locomotives have been replaced, making a total of 1,421 electric locomotives or motor cars in use where steam locomotives would otherwise now be employed.

Partial list of steam locomotives and dummies replaced by electrical equipment on American street and interurban railways since January 1, 1888.

Alabama.....Anniston Street Railway, 2; Bessemer Dummy Line Co., 2; Birmingham and F. C. Dummy Street, 2; Birmingham Railway and Electric, 16; Blountsville and Bangor Dummy Line, 6; Decatur and Trinity Belt Line, 1; East Birmingham Street, 3; Gadsden Land and Improvement Co., 2; Highland Avenue and Belt, 8; Mobile and Spring Hill R. R., 1; Mobile Street, 4; North Birmingham Street, 4; Oxford Lake Line, 2; Selma Street Railway and Dummy Line, 7; Sheffield Street, 2; South Calera Land and Improvement Co., 1; Tuscaloosa, 1.

Partial list of steam locomotives and dummies replaced by electrical equipment on American street and interurban railways since January 1, 1888—Continued.

California.....	California Railway (Oakland), 4; City (Pasadena), 1; Coronado, 9; Eureka Street, 6; Ferries and Cliff House, 10; Geary Street Park and Ocean, 4; Los Angeles and Redondo Ry., 12; National City and Otaya, 5; North Shore Ry., 8 (?); Pacific Coast Ry., 6 (?); Park and Ocean, 7; Presidio and Ferries, 5; San Diego, Old Town and P. R., 3; San Jose and Alum Rock Park, 4; Southern California Motor, 3; Temescal and Berkeley Ry., 6.
Colorado.....	Colfax Electric, 1.
Florida.....	East Florida Land and P. Co., 2; Penacola Terminal, 3; Tampa Street, 3.
Georgia.....	Atlanta and Edgewood Street Ry., 2; Atlanta Consolidated Street, 2; City and Suburban (Savannah), 3; Coast Line, 1; Columbus, 3; Metropolitan Street, 10; Milledgeville and Asylum, 2; Rome Street, 3; West End and Atlanta Street, 1.
Illinois.....	Alton Improvement Association, 2; Rock Island and Milan Street Ry., 4; Union Street, 2.
Indiana.....	Evansville, 2; Muncie Street, 4.
Iowa.....	Ames and College, 1; Des Moines Suburban, 4; Lake Manawa, 5; Sioux City and Highland Park Ry., 3; Sioux City and Morning Side, 2; Sioux City Rapid Transit, 4; Twin City and Des Moines River Motor Street Ry., 2.
Kansas.....	East Side Street, 3; Leavenworth Rapid Transit, 5; Riverside and Suburban R. R., 1; Topeka Belt, 2; Topeka Rapid Transit Ry. Co., 6; West Side Circle, 3; Wichita and Valley Center, 3.
Kentucky.....	Winchester Street Ry., 1.
Louisiana.....	New Orleans and Carrollton, 19; New Orleans City and Lake, 7; New Orleans Spanish Fort and L., 6.
Massachusetts.....	Black Rocks and Salisbury Beach, 1; East Warcham O. B. and P. I. Street, 2; Hoosic Valley Street, 2.
Michigan.....	Ann Arbor and Ypsilanti Street, 2; East Detroit and Grosse Points, 7; North Park Street, 2.
Minnesota.....	Tower and Soudan Street, 2.
Mississippi.....	Columbus Street Ry. and Power Co., 1.
Missouri.....	East Fifth Street, 9; Interstate Consolidated Rapid Transit, 17; Kansas City, Independence and Park, 5; St. Louis Cable and Western Ry. Co., 8; Waldo Park, 6.
Montana.....	Butte Consolidated, 5; Great Falls Street, 1.
Nebraska.....	Lincoln Rapid Transit Co., 3; Metropolitan Cable, 10; Omaha Southwestern Street, 1.
New Hampshire.....	Concord Street, 2.
New Jersey.....	Atlantic City Ry., 5; North Hudson County, 10.
New York.....	Brooklyn City, 29; Elmira and Horseheads, 2; New Brighton and Onondaga Valley R. R., 1; Seneca Falls and Waterloo R. R., 2.

Partial list of steam locomotives and dummies replaced by electrical equipment on American street and interurban railways since January 1, 1888—Continued.

Ohio.....	Columbus and Cincinnati Street Ry. Co., 3; Pendleton, Mount Lookout and N. W. H., 4; Price Hill Inclined Pl., 2; Wellston and Jackson Belt Ry., 2.
Oregon.....	Albany Street, 1; City and Suburban, 6; City and West Portland Park, 2; Mount Tabor Street, 3.
Pennsylvania.....	Frankford and Southwark Philadelphia City Passenger R. R., 8.
South Dakota.....	Watertown and Lake Kampeska, 2.
Tennessee.....	East End, 4; Fountain Head, 3; Memphis and Prospect Park Ry. Co., 1; Nashville and W. U., 4; Overland, 6; Tennessee River and Waldens Ridge R. R., 3.
Texas.....	Corpus Christi Imp., 2; Dallas and Oak Cliff, 4; Dallas Rapid Transit, 4 (?); Denison Rapid Transit, 2; North Dallas Circuit, 2; North Side Street Ry. Co. (Fort Worth), 2; North Texas Traction Co., 4; Waco Street, 2.
Utah.....	Ogden and Northwestern, 2; West Side Rapid Transit, 4.
Virginia.....	Roanoke Street, 2.
Washington.....	Point Defiance Street, 3; Seattle City, 2; Spokane Falls and Montana, 2; Tacoma (eight lines), 40.
West Virginia.....	Wheeling and Elm Grove, 5.

Total number of roads, 126.

Total number of steam units replaced, 558.

Partial list of steam locomotives replaced by electrical equipment on standard railways in America.

California.....	Southern Pacific Co. (Oakland), 20.
Connecticut.....	New York, New Haven and Hartford R. R. (New Canaan branch), 4; New York, New Haven and Hartford R. R. (Stamford to New York), 45.
Illinois.....	South Side Elevated R. R., 46; Lake Street Elevated R. R., 40.
Maryland.....	Baltimore and Ohio R. R. (Baltimore tunnel), 4.
Massachusetts.....	New York, New Haven and Hartford (Nantasket branch), 8.
Michigan.....	Grand Trunk R. R. (Sarnia tunnel), — (?).
New Jersey.....	Pennsylvania R. R. (West Jersey and Seashore), 20.
New York.....	Erie R. R. (Lockport and Tonawanda), 5; Erie R. R. (Rochester-Avon), 6; Brooklyn and Brighton Beach, 8; Brooklyn, Bath and West End, 7; New York and Sea Beach, 6; Prospect Park and Coney Island, 10; Brooklyn Elevated, 95; Kings County Elevated, 44; Sea View, 7; Brooklyn Bridge, 19; Manhattan Elevated, 334; Long Island R. R. (suburban service), 40; New York Central (New York terminal), 70.
Ohio.....	Cincinnati, Georgetown and Portsmouth, 5.
Rhode Island.....	New York, New Haven and Hartford R. R. (Providence, Warren and Bristol), 20.

Total number of roads, approximately 21.

Total number of steam locomotives replaced, approximately 863.

CHAPTER IV.

INTERURBAN RAILWAYS—ECONOMIC, FINANCIAL, AND SOCIAL FEATURES.

Conditions of interurban development.—One of the leading features, if not indeed the principal one, of electric-railway development during the period 1902 to 1907, was the extension of the interurban electric railways which are now to be found in almost every part of the country, and which in many instances, by the extent of their operations, rival main lines of steam railroad. In the report for 1902 considerable attention was paid to this development, of which the various elements were discussed for the first time. The radical nature of this advance and its bearing upon the street-railway industry are well indicated by the fact that the representative national body, the American Street Railway Association, has changed its name, and the better to represent and designate the field which it covers has become the American Street and Interurban Railway Association. While it is true that many of the interurban roads have a large city or community as a terminal or at some point along the line, their trackage lies very largely in rural districts and they often merely make connection with the existing local street-railway systems at the populated points they touch. One of the first effects of the application of electricity to street-railway traffic was to develop suburban passenger business and to build up widely scattered suburban districts. The secondary effect was soon made manifest in the operation of interurban electric railways, which, in knitting the whole community together, have done for vast rural regions what the street railway has done for the suburbs, and have benefited both city and country alike. One of the remarkable features of this development is the continuity of service afforded, enabling a passenger who wishes to travel cheaply to use the trolley almost without a break over long routes, so that to-day there are comparatively few interruptions to a trip of this kind between New York and Chicago, Boston and New York, Indianapolis and Chicago, Chicago and St. Louis, Louisville and Cincinnati, and other widely separated points.

Length of journey possible.—As the result of the work done during 1906, 1907, and 1908, one may now travel by trolley cars from Sheboygan, Wis., or Rockford, Ill., to Port Huron, Mich., Louisville, Ky., or to Buffalo, N. Y., with but one interruption in the service, and during 1908 a gap of less than 20 miles in the longest trip named was being closed. To go by these cars from Sheboygan to Buffalo one would travel not only

over roads of the best possible construction built during 1907-8, but along routes of large interurban systems constructed chiefly or wholly in the present census period, with substantial roadbeds and comfortable cars. Starting from Sheboygan, the passenger bound eastward for New York state would travel to Milwaukee over the Milwaukee Northern Railway—one of the important roads included in this report, so progressive as to generate its electrical energy with the latest type, large gas-engine-driven units. From Milwaukee the trip south 75 miles to Evanston is made over the Chicago and Milwaukee Electric Railroad, which has an electric service over a double-track line in Wisconsin and over a four-track one between Waukegan and Evanston, and which at Evanston has a joint terminal with the Northwestern Elevated Railroad Company. The next link is a double-track surface line of the Chicago, Milwaukee and St. Paul Railway, in 1908, thus furnishing the elevated road with a surface extension between Evanston and the Wilson Avenue terminal. Arrived in Chicago, the passenger has many alternative routes by which to reach Hammond, Ind., where is located the terminal of the Chicago, Lake Shore and South Bend Railway, with a heavily built, high-speed, single-phase electric-railway system of modern design, built in 1907-8. Starting from Hammond, or from Pullman, Ill., the route of this line extends along the shore of Lake Michigan and continues across the state of Indiana, the passenger reaching the eastern terminus at South Bend, after having passed through a number of important points, including Gary, the new steel center. From South Bend to Warsaw, Ind., the passenger can continue his eastern trip over the Chicago, South Bend and Northern Indiana Railway and the Winona Interurban Railway system, the latter of which has recently built an extension from Warsaw to Peru, Ind. At this point, in the vicinity of Akron and Mentone, occurs the only short break, one of about 20 miles, which is now being closed. At Peru, Ind., limited cars of the Winona Interurban connect with the limited service of the Fort Wayne and Wabash Valley Traction Company, operating between La Fayette and Fort Wayne, and from Fort Wayne the Ohio Electric Railway system covers the ground to Lima. Arrived at Lima, either of two routes can be taken to Toledo, and from that city the limited service of the Lake Shore Electric Railway Company (Ohio) continues to Cleveland over a route

of 121 miles. From Cleveland the route lies eastward through Painesville, Ashtabula, Conneaut, and Erie, over the systems of the Cleveland, Painesville and Eastern Railroad Company, Pennsylvania and Ohio Railway Company, the Conneaut and Erie Traction Company (Pa.), and the Buffalo and Lake Erie Traction Company, at last reaching Buffalo.

Ramifications of electric lines.—The foregoing gives a clear idea of the extent of the journey that can now be taken entirely by means of trolley lines without resort to the steam roads. But the picture is not complete, as other systems of a similar character, built or under construction during the report period, would make possible a similar journey from Buffalo to St. Louis, Mo., while now the journey, with few breaks, might possibly be continued eastward to Manhattan Island itself. These various lines referred to have been presented merely as connecting links in a continuous journey, but as a matter of fact each system should be regarded as a large and complicated network spreading over extensive portions of the states traversed, and including almost every point of importance between Buffalo, Chicago, Cincinnati, and Detroit, with ramifications that touch Missouri, Wisconsin, Kentucky, and West Virginia.

While such trips as these include sections of the line finished since the present census statistics were compiled, very few, if any, sections belong to systems not already projected in the census period nor to companies organized for work long prior to the beginning of 1908. The financial depression of the latter year has stood seriously in the way of new work of this character, but during the year a considerable number of systems have been completed or links built between systems in existence. Thus, for example, about January 1, 1908, a line was put into service between Brazil and Greencastle, Ind., by the Terre Haute, Indianapolis and Eastern Traction Company, giving through service over a direct route 73 miles long. In Missouri an exceptionally substantial line was finished from Pittsburg, in the southwestern part of the state, to Joplin, in the center of the densely populated zinc district. In Michigan steps were taken to connect the Detroit, Flint and Saginaw Railway and the Detroit United Railway, between Flint and Frankenmuth, making possible electric-railway travel between Bay City and Detroit, approximately 100 miles apart; and the Michigan United Railways Company inaugurated service on a new line between Lansing and Mason, forming a link in its high-speed third-rail division between Lansing and Jackson, from which latter city the company has for a number of years operated a single-track third-rail line to Battle Creek, as well as several divisions using the overhead trolley.

From this survey of one or two different fields, it will be seen how rapid and far-reaching the interurban development has been. One of the most active years in the entire period was 1906, when such an extraordinary development occurred throughout the state of Ohio that by the end of the year there were in operation in the state at least 2,600 miles of strictly interurban lines, while the completion of the Western Ohio Railway extension between Lima and Findlay, Ohio, was the finishing touch to a system which linked together more than 4,000 miles of interurban road in the 5 states of New York, Pennsylvania, Ohio, Michigan, and Indiana. The completion of this link was followed by the institution of "limited" service from Dayton to Toledo, a distance of 162 miles, giving, in connection with other roads, a fast trolley trip from the central part of Michigan across Ohio, and from the eastern part of Ohio westward into a very large part of Indiana. In the state of Indiana several new roads were constructed, and others operated during the previous census period were extended. Thus, for example, the Terre Haute Traction and Light Company completed an extension southward from Terre Haute to Sullivan, a distance of 26 miles, while in the vicinity of Evansville, in the extreme southwestern part of the state, two other lines were completed, to Mount Vernon, Ind., and Boonville; the Winona Interurban Railway went into operation during 1906 between Goshen and Winona, a distance of 28 miles, and then pushed its line southward from Warsaw to Peru; and early in 1907 the extension of the Indianapolis and Cincinnati Traction Company eastward from Rushville was completed, forming part of the connected road between these two large cities. Interurban systems during the period 1906-7 were also built or put in operation between Fort Wayne and Bluffton, La Fayette and Logansport, Muncie and Portland, and a number of other points. Many of these lines were at first unrelated and unconnected, but ultimately became links or subdivisions in a close network.

System of Illinois Traction Company.—A typical system is that of the Illinois Traction Company, composed of some 20 subsidiary companies, organized in 1904, whose ramifications now include no less than 425 miles of main line interurban track exclusive of its trackage rights in cities and its local street-railway systems. Its longest direct line is from Danville, Ill., where it owns and operates the street-railway and electric-light company and other systems, to East St. Louis, a distance of 227 miles. Near the central point of the system, two lines extend northward from the main trunk. One of these, to the eastward, connects Decatur with Bloomington, 45½ miles northward, while the other extends from Springfield to Mackinaw, 57 miles to the

north, where it connects with the Bloomington-Peoria division, 37½ miles long. The three principal branches of the system—Peoria to Springfield, 74.7 miles; Danville to Springfield, 130.7 miles; and East St. Louis to Springfield, 96.6 miles, as well as the Bloomington-Decatur division, 45.5 miles—are each served with limited trains operated at high speed on a two-hour headway. It will be understood that the use of the word "limited" refers to the limited number of stops made, the idea being to insure a quick service by restricting the number of stopping points. The schedules of the limited trains are so arranged that the cars meet at Springfield for the through transfer of passengers, so that patrons of the system can ride by limited trains from Danville, at the Illinois-Indiana border, to East St. Louis, on the Missouri line, a distance of 227 miles, on any one of six trains a day, which make the run in nine hours and forty minutes, a speed which compares favorably with that of the regular main line of steam travel. The running time for the 96.6 miles between Springfield and East St. Louis has been three hours and forty minutes, but this is being shortened at least forty minutes. A limited train leaves Danville each day at 6 p. m., reaching Springfield at 10.55, where the passengers can secure a sleeping car which arrives in St. Louis at 4.10 in the morning. The limited trains between Danville and East St. Louis make only 40 stops, or an average of 1 about every 5 miles, which gives an idea of the manner in which the service compares with ordinary steam travel rather than with suburban trolley travel, with its stops at short intervals.

The tracks of this Illinois Traction system over a large part of the distance parallel long-established steam-railroad lines throughout a territory which is both agricultural and mining, and the system is of real importance to the coal industry of the region. There are, for example, 7 coal mines along the route, which have no other outlet than the electric road, while on the parallel steam roads there are 100 coal mines, which are also served by the electric traction system. The coal traffic on the electric system is heaviest during the five winter months, when on an average about 1,000 carloads of 30 tons each of commercial coal are handled monthly. The three coal-mining districts are Danville to Champaign, Springfield to Peoria, and Staunton to Springfield, and the aim of the traffic department is so to arrange shipments that each group of mines supplies coal for its own division, thus keeping the car mileage down to as low a point as possible. The company has developed its coal business to such an extent that by 1908 it had in operation no fewer than 365 coal cars, many of which are used to deliver coal along the right of way to dealers who unload on their own special sidings directly to their own wagons for house and factory distribution. This coal traffic as well as other freight and express business is done at night, so as not to hamper the passenger schedules. During

1907-8 the company took steps to develop the freight and express traffic by the construction of belt lines around the largest cities, by inaugurating an extension of siding tracks, and by an improvement in the electric facilities. Some idea of this class of service may be formed from the fact that no fewer than 15 motor cars, 40 trailers, and 25 grain cars of 60,000 pounds capacity each are in daily use. The longest through-car express run made over the system is from Peoria to St. Louis, a distance of 171.3 miles, over which route trains are operated daily, leaving either end at 8 p. m. and arriving at the other end at 7 a. m.

The older part of the Illinois Traction system—more particularly that included in the census returns—is of the familiar direct-current type, but all the new work, including the line between Peoria and Bloomington, and a line from Mackinaw, midway between those places, through Lincoln southward to Springfield, has been done by the most advanced methods of alternating-current traction with 3,300 volts single-phase current. At the time of this report about 15 per cent of the interurban mileage was thus operated by alternating current, but it is obvious that this intermingling of direct-current and alternating-current methods must bring further important readjustments of electrical conditions.

Conditions on Pacific slope.—Thus far consideration has been given chiefly to interurban systems in the Middle West and the East, but it is not to be inferred that the Pacific slope has escaped this remarkable development in methods of transportation. The Spokane and Inland Empire Railroad (Wash.) has been cited as an evidence of progressive spirit; and attention may be directed also to the Pacific Electric Railway Company, of Los Angeles, Cal., which, chartered in 1901, had at the time of the census report nearly 200 miles of standard-gauge track electrified, and over 24 miles of a gauge of 3 feet 6½ inches, this network being operated with 104 passenger cars, including 14 closed, 7 open, 72 combination closed and open, and 11 combination passenger and express, etc.; 34 express, freight, and mail; 13 work and miscellaneous cars; and 2 steam locomotives. This system is mainly a consolidation of various street-railway systems and now, through its interurban lines, connects Los Angeles with Mount Lowe, Pasadena, Santa Ana, Sierra Madre, Long Beach, Huntington Beach, San Gabriel, and Naples, besides operating urban lines in 7 of the towns and cities along the route. Considering also the Los Angeles Interurban Railway Company, which is operated by the same management, there is a total of more than 500 miles of standard-gauge track built, equipped, and operated as part of the network. The lines radiating to the north, south, east, and west of Los Angeles reach every suburban town of importance within 35 miles, traverse all the fertile valleys, and make accessible all the seaside and mountain resorts that are not only patronized by the population of the

region, but invite visitors from every part of the United States. The general literature of this system in volume and attractiveness compares favorably with that issued by standard lines of steam railroads. Aside from the regular and excursion features of its business the Pacific Electric Company has developed a large amount of freight and express traffic since 1902, in which year it had no freight or express cars in operation. Equally remarkable has been the growth in passenger traffic, which of course does not necessarily imply the development of interurban traffic. It appears, however, from the company's statements that of their passenger business 56 per cent was of the strictly interurban type.

Methods of current supply.—During the census period the development of interurban systems of the United States from the electrical standpoint was accomplished entirely by methods, outlined in the 1902 report, of utilizing high-tension alternating current transmitted to various substations along the route, where this current passed through transformers and rotary converters—aided sometimes by storage batteries—and was delivered as direct current to the consumption circuit and to the motors on the cars. Early in the present census period, however, a further step in electrical development was taken by the adoption of the single-phase electric-railway system, of which, toward the close of the period, the most striking example was found on the New York, New Haven and Hartford Railroad. From the rapid progress made in this development of this single-phase method it seems likely to become a predominant method in the interurban work of the future, although various attempts have been made to develop the high-tension current system by raising the voltage used by the motors on the cars. In almost every instance the standard voltage for direct-current interurban systems included in this report has been 550 to 600 volts—this limitation being due to what was considered both feasible for the motors and safe for the public. There are, however, now in operation in this country a few direct-current systems where the pressure has been carried as high as 1,200 volts.

An interesting example of this work is furnished by the Indianapolis and Louisville Traction Company, the first interurban road in the United States to employ this high-tension system as well as the first to give connection through this section of the country. This line, equipped during 1907, has lines extending from Seymour on the north to Sellersburg on the south, a distance of 41 miles, and operates through cars from Louisville, Ky., of which Sellersburg is a suburb, as far north as Indianapolis, a run, in an almost direct line, of 110 miles.

The connections between the two cities are as follows: The lines of the Indianapolis, Columbus and Southern Traction Company, extending from Indianapolis southward to Seymour, are operated at 600

volts direct current; the Indianapolis and Louisville Traction Company's lines, connecting Seymour with Sellersburg, operate with a 1,200-volt current; while the Louisville and Northern Railway and Lighting Company and the Louisville and Southern Indiana Traction Company, connecting, respectively, Sellersburg with Jeffersonville, and Jeffersonville with Louisville, are both operated at 600 volts direct, under which conditions the system penetrates to the heart of Louisville.

The Indianapolis and Louisville line parallels the tracks of the Pennsylvania Railroad for a considerable part of the way, and, owing to the fact that the steam trains are run only at long intervals, has secured a large portion of the local traffic. The prices charged for transportation by the electric road are also below those of the competing steam railroads, and as the 2-cent fare is in force throughout Indiana the facilities for cheap transportation have thus been materially increased. Terminal facilities have been secured in both Louisville and Indianapolis, so that the comfort and convenience of passengers is enhanced by enabling them to complete their journey well within both cities.

The direct current for the line is generated by two standard 600-volt railway generators connected in series, so that the current is delivered to the consumption line at 1,200 volts. The motors on the cars are of what is known as the commutating-pole type, the use of the greater number of poles permitting the higher voltage to be used without danger of burning out the motor, the four smaller or commutator poles being placed between the main poles of the motors. The commutating poles are permanently connected in series with the armature, an arrangement which insures a variation of excitation and commutating field strength in sympathy with the load on the motor. The exciting fields are connected and handled exactly as are those on a standard 600-volt equipment, such as will be found in most of the interurban systems included in this report. When operated on a 600-volt current the four motors are grouped in the regular series parallel relation, but when on 1,200 volts they are divided into two groups each of two motors in series. These groups are in series and in parallel for accelerating and for free running, respectively. The change from the 600-volt to the 1,200-volt is made through a special commutating switch designed for the purpose.

The Central California Traction Company has also developed more recently a 1,200-volt direct-current system of the same character, comparing in general with the Indianapolis and Louisville line, with the exception that over the right of way outside of Stockton the 1,200-volt current is collected from a third rail instead of an overhead wire. In this instance, as in the other, in order to avoid changing in the connections of the controlling lighting and heating circuits when changing from 600 to 1,200 volts, a motor-generator

set, or what is sometimes termed a "dynamotor," is carried on the car. This machine has two sets of windings on the same core and in the same slots; is provided with a commutator at each end of the shaft; and in present practice has a maximum capacity of 10 kilowatts. The current generated operates the motor-control circuit, lamps, air compressor, and heaters. The motor-generator contactor box contains a 600-volt and a 1,200-volt contactor controlling the admission of the current or the reverse condition according to the section of the line over which the car is operating and the voltage employed. Both contactors can not be closed at the same time, so that the car can pass readily and safely from one voltage to the other.

Twelve-hundred-volt system.—Up to the present time 1,200-volt motors have not been adapted to ordinary street-railway transportation, but they are considered desirable for interurban roads 25 miles or more in length. The important factor in the use of this higher voltage is, of course, in the elimination of the substation, which, aside from the first cost of installation, is expensive in operation, this expense, exclusive of interest and fixed charges, being placed at about \$300 a month, which is virtually a fixed charge. It follows, therefore, that if one substation at 1,200 volts can be made to perform the same work ordinarily requiring two 550-volt or 600-volt stations, a saving of at least from 10 to 20 per cent in energy and other items is effected, while obviously over a shorter road the substation could be dispensed with altogether, and the energy generated at 1,200 volts direct current could be delivered directly to the line without any manipulation or transformation whatever. The results obtained in this direction have already made it possible for the voltage on direct-current trolley systems to be carried much higher, even to 2,400 volts, which of course would lead to a readjustment of conditions prevailing in the present census period.

Use of single-phase alternating current.—During the last three or four years an entirely new system of motive power has been developed for the operation of electric railroads, particularly those of the interurban class, although, as has already been pointed out, it has pushed its way into the steam-railroad field in this country, and in Europe has found a widespread application. This is the single-phase alternating-current system, applying a motor which can be operated entirely with alternating current at high voltage, but which can also, if desired, be employed part of the time, as within city limits, over direct-current sections as a direct-current motor. The use of such alternating-current methods carries with it the advantage of lower first cost and the elimination of the rotary-converter substation. Owing to the material reduction in first cost thus secured, many railroad problems, it is claimed, which have been economically impossible on account of the excessive initial expense of electrification, can now be considered from the electrical stand-

point. It has previously been the practice to operate alternating-current apparatus at a high number of alternations of current in the circuit, but in the single-phase motors the frequency has been brought down as low as 25 or even 15 cycles. A great many of the interurban roads included in this report are of the single-phase type. Thus the Washington, Baltimore and Annapolis Railway, with 61.4 miles of track and 25 cars, employs 575 volts on its direct-current operation and 6,600 volts in operating single-phase with a frequency of 25 cycles. This road was not put into operation until shortly after the census year. The Indianapolis and Cincinnati Traction Company put into service in December, 1904, a system of this kind, with 116 miles of track and 25 cars, with motors operating at 550 volts direct current and 3,300 alternating single-phase, 25 cycles. The Spokane and Inland Empire Railroad Company, with 222.19 miles of track, had some 80 motor cars operated at 550 volts direct current and 6,600 volts alternating single-phase, 25 cycles. The Warren and Jamestown Street Railway (Pa.), put into operation in September, 1905, has 20.32 miles of track with 6 cars, operating at 3,300 volts single-phase alternating, 25 cycles. The Fort Wayne and Springfield Railway Company (Ind.), put into operation in January, 1907, has 20.55 miles of electric track with 4 cars, operating at 6,600 volts single-phase alternating and 25 cycles. The cars in almost all these instances of single-phase work are operated with 4 motors to the car, with a capacity ranging from 50 to 100 horsepower per motor, and are therefore examples of the heavy work comparable with that done on steam railroads. A number of other instances might be cited, but these will suffice to show how rapidly the new method has come into use, and the general manner in which it has been applied to one of the most difficult problems connected with interurban work, namely, the economical delivery of current over an extensive network to large motor cars operating at high speed.

Higher voltage for wider distribution.—It will be understood, however, that on the great majority of interurban roads, as well as on all the urban systems, the direct-current method is still in use, and is likely to continue the established system for various reasons, one of which is the cost of making a change. When the last report was compiled a number of the earlier interurban systems employed the direct current, not only at the motors on the line but for transmission purposes, but the use of alternating current for transmission was begun prior to 1902 and has developed enormously in connection with interurban work. One of the first roads of this character was the Toledo, Fremont and Norwalk Railroad in Ohio—now part of the Lake Shore Electric Railway system, with 16,500 volts alternating current delivered over 65 miles of road; this was followed in the Middle West by the Stark Electric Railroad (Ohio) and the Cleveland and Southwestern

Traction Company (now a part of the Cleveland, Southwestern and Columbus Railway Company) employing 22,000 and 24,000 volts, respectively; and the next step was taken by the Western Ohio Railway Company, which with an 80-mile line and a station of 3,300-kilowatt capacity went to the high potential of 33,000 volts. This utilization of alternating current with high pressures has enabled a single power plant to serve an extraordinarily large territory and trackage. Thus, for example, during 1906 the St. Mary's power plant of the Western Ohio, situated near the center of the system, with lines radiating in four directions, took care of 177 miles of road. At the end of 1906 the Medway power station of the Indiana, Columbus and Eastern Traction Company (lessor to Ohio Electric Railway Company) was supplying 165 miles, and since then has added considerably to the mileage served; the Cleveland and Southwestern, with 135 miles of road fed from a single station in 1906, has added 86 miles to its load; while the Lake Shore Electric in 1906-7 was supplying about 200 miles of track from its two power stations. This latter line has a single stretch of 120 miles, and the stations of approximately the same size, located at suitable distances from the ends of the line, distribute the load between themselves to the best advantage, the longest transmission being not more than 35 miles on the main line.

Some of the interurban roads, of which these cited are typical, generate the high voltage directly from the alternating-current machinery employed, while others develop the current at a low voltage and then use step-up transformers for delivery to the transmission line, the current being stepped down at the substation by transformers and delivered to the rotary converters in the usual manner. A pressure of 33,000 volts on the transmission system has now become quite common as a standard voltage, while others operate at 26,400 volts. During the last few years several of the interurban systems have taken their current from lines with even a greater voltage than these, as, for example, the power-transmission plant of the Grand Rapids-Muskegon Power Company, which is working at a pressure of 80,000 and 100,000 volts, furnishes current to several interurban railways.

With regard to substations, it may be noted that some little variation exists both as to the distance apart and the nature of substations or equipment. In Indiana the average distance apart of the substations on the interurban roads appears to be from 12 to 21 miles, giving perhaps an average of 15 miles; on the Indianapolis Northern division of the Indiana Union Traction Company the distance is, with one exception, 17 miles, while the substations of the Indianapolis and Northwestern Traction Company are 16 miles apart, irrespective of towns. Two methods have been common with regard to the location of substations, one of which has been that of placing the substations in vil-

lages along the route, where the attendant can perform the various duties of station operator, ticket agent, and freight agent. This has required the design of special buildings suitable for the purpose, with the substation in one part. Of late years, however, the tendency appears to be toward the isolation of the substation, so that the attendant can give his exclusive attention to the machinery, and also because in some towns and villages high-tension lines, passing through the streets to the substations, have been regarded as objectionable and dangerous. The Western Ohio Railway Company, for instance, has four isolated substations which are two-story brick residences, fitted up as homes for the attendants, who are on duty practically all the time. The Scioto Valley Traction Company (Ohio) has also isolated its substations and machinery. In a number of places its stations are in towns, and the ticket offices and the freight stations are in independent buildings and have separate attendants. Older methods are, however, often used in the later systems, as in the case of the Oregon Electric Railway system, organized in 1906, and not put into operation until 1908, and mentioned elsewhere in this report. This system has five substations of its own along the line, while the ends of the line are fed from substations belonging to the local power and light companies in Portland and Salem. The company's own substations, however, have not only electrical compartments for the reception and transformation of current, but have waiting rooms and ticket offices, and the attendants act as electricians, station agents, and telegraph operators.

The transformers and rotary converters in such stations are of a size dependent to a certain extent upon the work required and the amount of traffic over the road, but the step-down transformers range in size from 150 to 300 kilowatts, and are usually of the oil-cooled type. In like manner the rotary converter which receives the low-pressure alternating current and delivers it as direct current to the consumption line averages from 200 to 350 kilowatts.

An interesting practice that has developed during the census period is that of employing for various uses "floating" or portable substations, which are outfits mounted on cars. These stations are either old freight cars strong enough to carry the weight, or, more particularly in later practice, cars specially designed and built for the purpose, and are kept on convenient sidings to serve temporarily the purpose of substations. It often happens that at some seasons and points on a line there is a special congestion of traffic, due to ball games, county fairs, horse races, etc. At such times these portable substations are taken to the nearest convenient point along the line and are able to secure from the transmission circuits the additional current needed for handling the exceptional traffic. Or, in case of an accident to any of the permanent sub-

stations along an interurban line, one of these floating stations can immediately be called on to take its place. They constitute thus both a means of dealing with sudden or unusual congestion of traffic at any point and a reserve against accident.

Bases of interurban exploitation.—The work of developing interurban systems has been due largely to the operation of large syndicates, many of which are known in the electric-railway field under various corporate names and popular designations, and which often represent groups more or less closely related. Such operations were active during the census period and are likely to continue unchecked so long as the necessity for these roads exists or profit from their construction and management appears possible. Very close study, however, is now being made of all the conditions bearing upon the development of these roads, and with the control likely to be exercised by public-service commissions with large powers there is good reason to expect a cessation of the somewhat hazardous exploitation which marked the earlier stages.

In regard to interurban-railway work, it is safe to assume that traffic will increase with the population served; but it is exceedingly difficult to determine the number of people who are served by the roads or who may be regarded as living in the territory that would naturally supply it with traffic. One of the difficulties in this respect appears in connection with the terminal city of the interurban line. Most lines of this character have a city of at least fair size at one end of the line, and often at either end, and in such networks as have been referred to above several large cities are frequently included. These conditions obviously have a marked influence on the traffic, both passenger and freight, as the people in the country will be frequent visitors to the town, while those in the city will often ride into the country and may be tempted to live out some distance in the rural regions, actually occupying individual farms rather than living, as before, in merely suburban districts. It is obvious, however, that the entire population of the terminal city can not be included in any estimate of the interurban-railway business, or, if included and counted in the tributary population, can not be regarded in the same light as the residents of the smaller rural communities for whom the interurban line is the great if not the only means of transportation by rail. As to the interurban population itself, the facility with which people travel on the line is inversely proportional to the distance at which they live from the tracks, and in practice the usual method is to include all the population residing within $2\frac{1}{2}$ miles on either side of the line. This district, however, has to be carefully canvassed, as the population is irregularly distributed, part of it being clustered in villages and hamlets and part widely scattered on farms which can not in any way come into the returns of urban or semiurban population. Hence a variety of methods are followed

by engineers and financiers in making investigations as to the probable earning capacity of interurban systems. It appears that some of the financial or engineering authorities engaged in such work count in the entire population of the terminal city if below 50,000 people, while if above that figure they credit the terminal with 50,000 plus a gradually decreasing percentage of the additional inhabitants above that number. By others the population of the terminal city is thrown out altogether from the estimate, one of the reasons being that while the terminal city is on the route of the system the traffic, under ordinary circumstances, comes mostly from the rural population visiting the terminal city along the line rather than vice versa. This condition might be varied by the location of a park some distance out on the line of the road, as the park would be visited principally by city residents; but, if a special allowance be made for such travel, the ordinary traffic to be secured can be and often is figured exclusively from the rural population. Among the states which were prominent in the earliest days of interurban electric development are Ohio and Indiana, where such roads have been in operation longer than in other sections of the country, and have now become almost continuous. It was at one time assumed in many quarters that, owing to the favorable conditions, interurban roads in Ohio could earn from 20 to 25 per cent more per mile than roads in the adjacent states of Indiana or Pennsylvania. The reason given was that there was more manufacturing in Ohio than in the other states, which would tend to create a large amount of travel not to be found in rural or agricultural districts. The rapid development, however, of interurban railways in Indiana seems to contradict this theory and to prove that a prosperous agricultural population, not too far removed from urban centers, is quite as ready to use transportation facilities as one devoted to manufacturing, and equally able to contribute to its earnings.

The conditions connected with the introduction of the interurban-railway system include not only the consideration of tributary population for $2\frac{1}{2}$ or 3 miles on either side of the track and the nature of the industries of the region—agricultural, manufacturing, etc.—but also the laws of the state or the rulings of the public-service commissions bearing upon the subject, particularly with regard to franchises and rights of way. The character of construction is also an important matter, dealing as it does with the kind of roadbed, grades, curves, rails, bridges, etc., and the power-plant equipment, while the estimate of cost must include right of way, roadbed, track, line construction, buildings and power plant, rolling stock, and a number of incidental expenses connected with the preliminary legal and engineering work. The question of probable earnings is perhaps the chief consideration, and increasing attention is given to it in a study of interurban-

railway problems. The gross earnings per annum are often approximated by comparison with other roads; by taking the assumed receipts per mile of track per annum; or by multiplying the number of persons tributary to the line by an assumed amount to be expended per person per annum for such transportation. Another general method is to estimate the probable passenger, freight, and express revenues separately, that from passenger receipts being derived by multiplying the number of car miles run by unit receipts per car mile, while the freight estimates are sometimes reached by multiplying the number of carloads of freight in and out of the territory by an average rate per car, and adding thereto a lump sum for express and light-package business. There will also be a possible income from special events, such as conventions, holiday travel, and summer amusements, and special estimates will also include rentals and the sale of power. The gross expenditures to be considered are operating and interest charges, taxes, and damages, while the net income is applied to depreciation account and dividends on the stock.

In discussing this general subject in 1907 Mr. Robert P. Wood, president of the Indiana Engineering Society, pointed out the complex nature of the conditions involved in interurban-railway work, and under the subject of franchises outlined in abstract a municipal franchise, considered fair to all parties, which would consist of 14 sections, as follows:

Sec. 1. Consent of authorities and designation of route. Sec. 2. Kind of rails with top conforming to surface of highway or street. Sec. 3. Right of company to repair and obligation to maintain existing pavement for width of 8 feet. Sec. 4. Obligation to repave the 8-foot width with new materials when balance of street is being paved, but the railway company is allowed privilege of doing its own work. Sec. 5. Right of company to maintain, construct, and operate the railway over and across all railroads and bridges. The bridge provision is omitted in county franchises. Cars are entitled to the tracks against all vehicles, except funeral processions and fire department when on duty. Sec. 6. Location, kind and manner of setting poles, and height of cross wires. Poles and wires not to interfere with existing telegraph, telephone, fire-alarm, or electric-light wire unnecessarily. Sec. 7. In a municipal franchise the city is relieved from any responsibility or damage done by or to traction company. Sec. 8. Nothing granted shall be construed to take away from the common council the exclusive power it now has over the streets and alleys. Sec. 9. Right to transport passengers, mail, express, and freight, and to regulate its own rates. Sec. 10. Company agrees to adjust tracks and fix grades during improvement work. Sec. 11. Company has right to run schedule it deems consistent. Sec. 12. Length of franchise, fifty years. Sec. 13. As a consideration for franchises the company shall construct, complete, and operate a line of electric railway in said city, town, or county, within two years from acceptance of grant, otherwise franchise is void. Sec. 14. Ordinance is in force from and after its passage and acceptance by grantee.

Resort to private rights of way.—With regard to securing such municipal franchises and also to utilizing a part of the highway, the practice of using a cross-country private right of way has distinctly grown in popularity. Many of the earlier interurban roads

were built under county grant along the pikes and public highways. Thus, for example, the Lake Shore Electric Railway had in 1906 a location on the Perrysburg turnpike 10 feet wide for about one-third of its route. Several other roads in Ohio had considerable portions of their line along the national pike, a wide thoroughfare extending entirely across the state. In many places also they had the advantage of a ditch and poles between their tracks and the highway. The use of pikes has, however, been very generally abandoned, especially toward the close of the present census period, and many of the new roads in different parts of the country have bought private rights of way and shifted their tracks to these new locations. Among the objections to the use of pikes are the short life of the franchise, the inability to secure good drainage and grades, and the danger of operation due to collision, runaways, etc.

The next step in advance was the development of the system on a private right of way immediately adjoining the turnpike, it being often much easier to obtain from a man's farm a narrow strip adjoining the highway, where such a strip would be left almost invariably uncultivated, than one cutting across a farm and dividing it arbitrarily. The farmer was also willing and even anxious to have such a line pass immediately in front of his house or along the edge of his property. The more recent development in the direction of high-speed limited cars, intermingled frequently with long freight trains, has rendered the private right of way adjoining a pike almost as undesirable as the highway itself; and, in addition, a cross-country right of way enables the road to fence in on both sides, and to suit its own convenience in matters of grade, drainage, and speed.

Paralleling of steam railroads.—Another incidental method of development has been to parallel as closely as possible the right of way of a steam railroad; and the traveler on main lines of steam railroad in almost any part of the country can not fail to have noticed places where this practice has been put into effect, and has wondered, perhaps, why the competing electric road should thus put itself into such close relation with the steam railroad rather than get as far away as possible, in order to develop and control new traffic. There are, however, many incidental advantages in the close relation, and even though there may be some loss of traffic, it does not appear to cause the electric systems any anxiety. In some respects it enables the electric to serve better as a feeder to the main line, especially in the matter of freight.

Desirability of avoiding main streets.—It is still a question with interurban railroads whether it is better to seek a route along the main streets of villages or to be independent of them. The latter practice has lately been the general one, although such a system as that of the Berkshire Street Railway

Company, traversing a large portion of western Massachusetts, occupies the main thoroughfare in a large number of communities, except in places such as Lenox and Stockbridge, where the entrance of the trolley line has been forbidden by the inhabitants, who have restricted its tracks to the remote borders of the towns or hamlets. In Ohio many of the high-speed roads have carried their tracks away from the center of villages and towns wherever practicable, and find that they get as much business as ever, while avoiding the need of slowing down and the danger of accidents incidental to street operation. The Cincinnati, Georgetown and Portsmouth Railroad Company, which is a reconstructed steam railroad, owns every foot of ground traversed by the tracks, and the operation under such circumstances is most advantageous. Moreover, the private right of way across country, removed from turnpike and village streets, permits the roads to eliminate sharp curves, which are obviously objectionable from the standpoint of both high-speed operation and the running of trains of cars.

Long-distance travel.—So far as the development of its route and its track is concerned, the interurban electric railway is still in a period of transition and is trying to retain the advantages of the short haul while developing the long-distance travel and securing all the advantages of the long haul. Many of the interurban railroads of the newer type are strictly comparable with the main lines of steam railroad, but others must be included in the category of the ordinary street railway, making stops at practically every corner or farmhouse along the line, wherever passengers may wish to get on or off. With limited cars making only a definite number of stops between points widely apart, it is easy to maintain high speed and a highly organized train schedule, but where the stops are frequent and indeterminate, a low speed is demanded, and the total running time over a given route is so prolonged that the average rate of speed falls to a level not much higher than that of ordinary cars on a busy city thoroughfare.

The general attitude of street-railway and interurban managers on the subject is shown by the discussion which took place at the Central Electric Railway Convention at Indianapolis, in November, 1907, when the question was raised whether it paid interurban electrics to cater to long-distance travel. At the outset of the discussion it was urged that there should be agreement as to what mileage constituted long-distance travel, whether 60 miles or 160, since, a year or two before, a trip of 50 miles by interurban line had been considered long distance, but runs of 150 miles were now very frequent. It was held to be better for the long-distance car to make its entire trip only one-half or one-third filled with passengers than to start from a terminal with all the standing room

taken and to discharge its passengers within 2 or 3 miles, as in suburban systems, continuing the remainder of the trip almost empty. Of the business on limited cars, 25 per cent was said to be made up of long hauls. One of the parties to the discussion said that with the existing facilities the interurban lines should not attempt to get business over distances of 400 or 500 miles, a remark which, passing without comment, shows how remarkably the ideas of interurban managers have changed in regard to the extent of operation they should undertake. The district passenger and freight agent of the Terre Haute, Indianapolis and Eastern Traction Company, and the Indiana Union Traction Company stated as an instance of what interurban roads can do in the matter of long-distance travel, that he had contracted to haul a party through from Indianapolis to Zanesville, Ohio, a distance of 250 miles. The party left Indianapolis at 8 a. m., made a one-hour stop at Dayton, Ohio, and a stop of one and a quarter hours at Columbus, arriving at Zanesville at 7 p. m. The passengers came back the same way and were delighted with the trip. It was urged by some of the debaters, on the other hand, that much energy might be dissipated in catering to long-distance travel to the neglect of local travel, which could always be added and was worth securing. A report of the board of directors of the steam railroad paralleling the Fort Wayne and Wabash Valley Traction Company was quoted, to the effect that all the local steam travel had been lost to the interurban road, owing to the attention given by the latter to this branch of the business.

Cultivation of local business.—The method of developing the business of interurban lines may be better understood from the consideration of specific cases, and some interesting data on the subject have been noted by Mr. C. M. Cheney, general freight and passenger agent of the Waterloo, Cedar Falls and Northern Railway, in a paper read before the Iowa Street and Interurban Railway Association. This system, chartered originally in 1895 under the name of the Waterloo and Cedar Falls Rapid Transit Company, adopted its present designation in 1904, having in the meantime built up an extensive interurban system in which one stretch of 33 miles was opened in 1903. More recently in 1904—the company leased a branch of the Chicago Great Western Railroad, a steam line, the branch being 22 miles in length—an extension from Waverly to Sumner.

A few years ago this system had very inadequate freight terminals in the city of Waterloo, and had traffic connection with but one steam line, which it reached only through the city streets. Freight cars could be handled at night only, and abutting property owners protested. The management thereupon decided that good freight terminals were necessary in order to develop and handle a larger business of the

carload type, and built an outer belt-line extension around the northern and eastern sides of the city, connecting with the steam terminals, and having large freight depot facilities which were leased for a long term of years. At the terminal of the Denver division, 17 miles north, connection was made at the same time with the Chicago Great Western, which thus secured a much shorter route to points on its line north and west. A traffic contract was entered into by the two roads whereby freight directed to or coming from points north and west of Waterloo was turned over by the steam road to the interurban road for handling. This interesting arrangement opened up a great territory for the jobbers and merchants of Waterloo, and enabled the steam and electric lines to develop business jointly in the new territory as well as to win competitive business which the steam line had not previously secured on account of its inability to meet the time schedule made by other steam competitors.

During 1907-8 an additional belt line was constructed around the western side of Waterloo through a new factory district, and traffic connections were made with two of the steam lines entering Waterloo. The completion of this track in 1908 furnished freight transfer points with 4 steam railroads and an outer belt line around three-fourths of the city. Side tracks were built to various points in the new factory district and a station opened with an agent in charge. The effect on the system already developed was immediate, and the construction of the line has furnished from 2 to 4 carloads a day since the station was opened. An electric locomotive and switching crew were put on to handle the industrial and interchange switches, and Mr. Cheney states that this service is now interchanging from 5 to 25 cars per day with the railways. These figures give an idea in what way an interurban system can promote local industries; and, it is stated, several of the most important industries were brought to the locality by the organization of this new system and the consequent creation of facilities for securing raw material and dispatching manufactured goods. One of these industries in particular gave approximately 500 carloads of business in the first year and over 700 in the year following. The interurban system benefited naturally by the development of such traffic, but the enormous incidental gain to the whole community is apparent.

An illustration of a new way of promoting interurban business was mentioned by Mr. Cheney in his address. About five years ago he had occasion to visit one of the small country towns on the line, and in conversation with a bank cashier learned that the bank was in correspondence with four or five farmers in Illinois, with reference to securing farms at some point in Iowa. Following up this slight clue, Mr. Cheney himself went to Illinois to see the farmers, ex-

pecting, if successful, to get the haulage of 6 or 7 carloads of movables. The farmers, naturally impressed by such intelligent inquiry, were interested, with the result that they bought farms located at different points along the line. They were all progressive men, and one of the first things they did, on securing occupancy of their new farms, was to begin tiling them for drainage. This operation attracted the attention of the older farmers in the vicinity, with the direct result that from 75 to 125 cars of draitile have been shipped annually into the territory of the interurban road as compared with practically none in the years preceding. Interurban business is also developed by keeping in touch with building contractors and men handling materials for new construction, for by watching the award of contracts and following them up, it is possible to secure the routing over the interurban road of large quantities of brick, cement, plaster, hollow block, stone, sand, etc., purchased at points in the territory tributary to the electric line.

In developing less than carload shipments or "package freight" the shipments of milk and express parcels have been carefully looked after. Several years ago, when the system between Waterloo and Cedar Falls was put into operation and package freight first handled, it was necessary, in order to get the business, to meet the competition of a dray line, as the two towns were only 8 miles apart, and the slow dray service was well developed. A motor, freight, and express car was equipped, a schedule of two trips each way per day was laid out for the car, the arrangements were advertised, and by degrees the dray-line competition was eliminated, so that now nearly all the package freight between the two cities is handled by interurban motor express cars, with great economy of time, etc. This service has also handled, in connection with the Chicago Great Western road, shipments from Chicago into Cedar Falls aggregating several thousand pounds daily; in the factory district it handles factory shipments to and from the various factories; and from farms along the line, milk shipments for city dairies. This milk is picked up at country road crossings by the passenger cars, and is handled on a ticket arrangement, each milk can bearing a ticket of the required denomination. Such milk tickets are on regular sale and can be purchased at any of the company's stations. Six or seven cooperative creameries also deliver to the road at various country road crossings their butter shipments for Chicago and New York. The butter, amounting each week on an average to 1 carload in the winter and to 2 carloads during the summer, is picked up in refrigerating cars. As the Wells-Fargo Express Company operates over the entire line, the development of the express business is left largely to that concern, but the results are exceedingly satisfactory to the interurban-railway company.

The development of passenger traffic has followed similar lines. Joint ticket arrangements with some of the steam roads make it possible to sell through tickets to all points, an arrangement which has been the means of developing a large business. Cars on the interurban division are scheduled to make connection with the Chicago Great Western trains at Denver Junction, 17 miles north of Waterloo, and in cooperation with this railroad a large number of passengers are handled from strictly competitive towns. For several seasons the sale of combination Chautauqua tickets on the interurban line has been vigorously pushed, the ticket including round-trip transportation to the city each day during the season, and admission to all the Chautauqua entertainments scheduled. For several years past a large number of these tickets have been disposed of, bringing in considerable outside revenue to the Chautauqua Association, helping it to perfect a strong organization, and to secure a class of attractions steadily gaining in character and importance. The net revenue derived by the trolley system from the sale of these tickets is not in itself very great, but the business developed indirectly with other lines has made the effort well worth putting forth. The road has also given a good deal of its attention to building up local travel, so as to convert as much as possible of its interurban trackage into what might be called "suburban." The assistance given to new industries employing large working forces has added materially to the daily receipts, a fact which has been particularly noticeable during the past few years, on the older line between Waterloo and Cedar Falls. A large number of working people live in one city and have employment in the other, while yet others have built up suburban homes or are occupying small farms located between the two cities.

Working up freight and express patronage.—Many other instances might well be quoted to illustrate the manner in which interurban roads have built up their traffic. For example, the Mason City and Clear Lake Traction Company of Iowa, one of the earliest interurban systems, dating back to 1897, has depended very largely on its freight traffic. On the shore of a lake near one end of the line a large ice house has been built, which during the winter is filled with ice, and a salesman is put on during the summer to take orders for it. The freight revenue from this enterprise alone, when fully developed, is placed at \$20,000 to \$25,000 a year, in addition to which there would be a profit on the ice sold.

The Spokane and Inland Empire Railroad system, which was founded in 1906, and is itself a consolidation of other roads operating through a number of towns and cities in Washington, has tributary to it a very rich fruit district. Consequently one of its novel developments has been a "fruit special," which carries lecturers from town to town to interest and instruct

the owners of orchards along the line in the most improved methods of fruit raising and handling. This experiment has been very successful. The lecturers are professors from the Washington State Agricultural College and the University of Idaho; and the railway company secures good audiences by sending out in advance a programme showing when the train will reach each station and what subjects will be discussed. A flat car forms part of the train and serves as an open-air stage on which demonstrations to accompany the lectures are given in plotting, spraying, and pruning fruit trees.

System of train dispatching.—One of the important elements in the operation of interurban roads is the system of train dispatching adopted. The high-speed interurban roads of the present time require the greatest number of safeguards, and have naturally developed a number of systems more or less complex, most of which are based on the general method worked out in the standard code of the American Railway Association applied to steam railroads, but modified to a considerable extent to meet the conditions peculiar to electric-railway operation. One of these variations is that which involves the use of the telephone for transmitting orders from the dispatcher to the train crew. Only a small proportion of the steam railroads have thus far adopted the telephone, but with few exceptions interurban lines all over the country use the telephone system for train dispatching. A great deal of interurban mileage is single track, and automatic block signals have not yet been adopted to any great extent for long stretches, although they have proved valuable at points of congestion or special danger. A few of the later double-track roads, which approximate closely in methods to the steam railroads, operate automatic block signals, using track circuits, but the cost up to the present time has been so great, it is said, as hardly to warrant the investment. Train-order signals, operated automatically from the dispatcher's office, and designed to stop a car or train in order to get into communication with the crew, have, however, been installed in large numbers, as valuable adjuncts to the ordinary dispatching system.

There are five standard codes of train-dispatching rules in existence, which include instructions for issuing, receiving, and carrying out written train orders; and the rule books of nearly all the interurban roads operating at high speed contain instructions copied verbatim from one of these five standard codes or modeled closely upon their phraseology and practice, the changes being made to meet local conditions or to cover special cases. These five standard codes¹ are

¹ The American Street and Interurban Railway Association (see *Electric Railway Journal*, October 6, 1909, p. 961) at its last convention adopted a code which differs from the American Railway Association code, but which it is said by authorities will undoubtedly be standard for electric roads; that is, there will undoubtedly be two codes, the A. R. A. code and the A. S. & I. R. A. code.

those of the American Railway Association (already noted), the American Street and Interurban Railway Association, the Central Electric Railway Association, the Indiana State Railroad Commission, and the Street Railway Association of the state of New York. From the standpoint of the interurban roads, as has been noted, the steam code of the American Railway Association did not meet all the conditions of street-railway operation as satisfactorily as the other modified codes, the principal objection being that it is too cumbersome to adapt itself readily to the quicker movement made necessary by the passage of more frequent single cars or short trains upon which the interurban system is essentially based. It assumes, also, the presence of an operator at each train-order station, who acts as an intermediary between the dispatcher and the train crews. Ordinarily, it is pointed out, the exigencies of traffic require means whereby every siding becomes a train-order station. This the telephone provides very adequately and, with train crews in direct communication by telephone, many of the clauses of the American Railway Association code are rendered useless. A number of interurban roads have adhered, however, to the provisions of this code, among which may be noted the Spokane and Inland Empire Railroad system (Wash.); the Interurban Railway, of Des Moines, Iowa; the Albany and Hudson Railroad system (N. Y.); the Northern Electric Railway Company, of Sacramento, Cal.; the Scioto Valley Traction Company (Ohio); the Toledo and Western Railroad (Ohio); the Waterloo, Cedar Falls and Northern Railway system, of Iowa; and the Toledo and Indiana Railway system (Ohio).

The code of the New York Street Railway Association was adopted in September, 1907, and follows closely the American Railway Association code with respect to the rules affecting train orders. A number of interurban systems in New York have adopted its rules, among them being the International Railway Company, of Buffalo; the Utica and Mohawk Valley Railway Company; the Rochester and Sodus Bay Railway; the Fonda, Johnstown and Gloversville Railroad; and the Rochester and Eastern Rapid Railway. The essential difference in the rules is the inclusion of a regulation in the New York code providing that on remote sidings train crews receive orders by telephone direct from the dispatcher. This rule is as follows: "When necessary for train crews to receive train orders by telephone the conductors must receive and make a written record of the order. The motorman must repeat it back from the record made by the conductor. The order must not be acted upon until 'complete' is given by the train dispatcher to motorman, and acknowledged by the conductor."

The rules of the Central Electric Railway Association are almost identical with those approved by the Indiana state railroad commission and adopted by

a majority of the roads in the Middle West. The principal point which distinguishes the practice laid down by these rules is that in all cases one member of the train crew calls the dispatcher and writes the order as received over the telephone. The other member of the crew is then required to repeat the order, as written, to the dispatcher, and both must sign it before the "complete" is given and the order has force. The sole function of operators, at stations where they are on duty, is to set the train-order signal to stop and to receive the instructions of the dispatcher, the train crew, on arrival, calling the dispatcher and receiving the orders in the same way as at an outlying siding. Among the roads in the Central states which employ the methods outlined by these two codes are the Toledo Urban and Interurban Railway (Ohio); the Kokomo, Marion and Western Traction Company (Ind.); the Western Ohio Railway Company; the Fort Wayne and Wabash Valley Traction Company; the Terre Haute, Indianapolis and Eastern Traction Company; the Cleveland, Southwestern and Columbus Railway; the Pittsburg and Butler Street Railway (Pa.); and the Evansville and Southern Indiana Traction Company.

The rules of the American Street and Interurban Railroad Association have been developed more especially to meet the requirements of electric roads, which, in several important respects, they suit more fully than do the rules laid down for steam railroads under the older standard code. These rules assume the use of the telephone to transmit train orders, and provide a different proceeding for receiving train orders at stations where agents or operators are on duty from that in use at sidings where there are no operators. Among the interurban systems which have already adopted these rules may be noted the De Kalb-Sycamore and Interurban Traction Company (Ill.), the Northern Texas Traction Company, and the Utica and Mohawk Valley Railway (N. Y.), systems.

Universal as has become the use of the telephone on interurban lines at the time of this report, a few companies still adhered to the use of the telegraph, depending upon the telephone only in emergencies. The roads employing the telegraph follow more closely the proceedings of the American Railway Association in having an operator act as an agent for the transmittal of orders between the train dispatcher and the train crew. Such roads include roads in Iowa, California, and Washington, all of which use the telegraph in transmitting orders to stations where operators are on duty, but also have telephone lines which can be used by train crews at other points. Many of the more important interurban roads have installed an entirely separate telephone-dispatching system, which is connected to all stations, substations, and jack boxes or booths at sidings. An inquiry made by the Bureau of the Census (see Table

1701 on the subject during 1908, as to the standard practice on 37 roads, showed that 27 of the systems employed a separate telephone line exclusively, for dispatching.

Three different forms of telephone instrument are in use—portable telephones carried on every car; telephones mounted permanently in the front vestibule of cars; and wall sets mounted permanently in stations or in lock booths at sidings. Various modifications of practice are found on different roads. The main idea, of course, is to keep the dispatcher in as close touch as possible with the cars or trains along the line. The frequency with which a train crew is required to report during a run between terminals depends, however, entirely upon local conditions and the strictness of the managerial control. The Berkshire Street Railway system, which covers a large part of western Massachusetts, requires all its interurban crews to report at each siding. On the Iowa and Illinois Railway, a high-speed interurban road between Davenport and Clinton, Iowa, a distance of 36 miles, where the run is made in one hour and eighteen minutes, and cars leave each end every hour during the day, the departure of the train from the terminals is reported promptly to the dispatcher

by the station agent as it passes a substation which is a regular meeting point. These reports, together with his own record of the time of passing his office, about midway between terminals, enables the dispatcher to keep a close check on train movements, so that under the rules of this road the train crews are not required to obtain orders or to report at any particular siding or substation. A peculiar feature of the practice on this road is the method of holding back a train which has lost time, and which on becoming seven minutes or more late loses its right of way, and is held back, as an extra would be, in favor of regular trains. When necessary, another car is substituted at terminals on its return trip. This arrangement prevents heavy cars on the road from losing time waiting at the regular meeting points for a single delayed car, and thus enhances the general quickness and regularity of movement over the whole system.

An interesting table is included in this chapter summarizing the data with regard to several of these features on interurban roads in New England, the Middle West, and other parts of the country, the data being furnished in reply to special inquiries addressed to the managers of the various systems.

STREET AND ELECTRIC RAILWAYS.

TABLE 170.—TRAFFIC OF SELECTED

Prepared from replies to a

STATE.	Name of company	Method of train dispatching.	Miles of track operated.	Average speed of cars in miles per hour.	Frequency of passenger cars on main lines.	Estimated average distance traveled by each passenger, in miles.	Estimated average fare per mile (cents).
1 Massachusetts.	Connecticut Valley Street Ry. Co.	Telephone....	47.40	16 to 16	30 minutes and 1 hour...	16	1.25
2 Massachusetts.	Boston and Worcester Street Ry. Co.	Telephone....	29.58	11 to 21	15 and 30 minutes.	16	1.43
3 Massachusetts.	Fitchburg and Leominster Street Ry. Co.	Telephone....	60.50	8 to 14	15 minutes city, 30 minutes and 1 hour suburban and interurban.	5	
4 Connecticut....	New London and East Lyme Street Ry. Co.	Verbal orders.	11.41	11	30 minutes summer, 1 hour winter.		1.67
5 Connecticut....	Groton and Stonington Street Ry. Co.	Regular passenger points.	20.00	14	30 minutes.		1.43
6 New York....	Rochester, Syracuse and Eastern R. R. Co.	Telephone....	71.75	23	30 and 50 minutes.		
7 New York....	Oneonta and Mohawk Valley R. R. Co.	Telephone....	65.33	18 and 19	1 hour....		1.25
8 New Jersey....	Camden and Trenton Ry. Co.	Telephone....	44.55	12	30 minutes.	24	1.25
9 Pennsylvania..	Lancaster and Wyoming Valley R. R. Co.	Telephone....	20.00	25 to 48	30 minutes and 1 hour....		1.50
10 Pennsylvania..	Meadville and Cambridge Springs Street Ry. Co.	Cars meet at station.	17.10	16	1 hour....	10	2.00
11 Pennsylvania..	Conestoga Traction Co.	Telephone....	143.78	15	30 minutes and 1 hour....		
12 Ohio.....	Eastern Ohio Traction Co.	Telephone....	82.78	12 to 19	1 hour....	8	2.00
13 Ohio.....	Cleveland, Fairview and Eastern R. R. Co.	Steam-road dispatching machine.	15.00	30	30 minutes.		1.00 to 2.00
14 Ohio.....	Duyton and Xenia Transit Co.	Private telephones.	53.00	14 and 18	1 and 2 hours.	9	1.39
15 Ohio.....	Toledo, Port Clinton and Lakeside Ry. Co.	Telephone....	57.00	22	1 hour....		2.00
16 Ohio.....	Toledo Urban and Interurban Ry. Co.	Telephone....	58.50	35	15 minutes city; 1 hour interurban.	25	2.50
17 Ohio.....	Stark Electric R. R. Co.	Telephone....	34.42	20	1 hour....		2.00
18 Ohio.....	Storobsville and Wheeling Traction Co.	Dispatcher.	12.40	12	30 minutes.		1.25
19 Indiana.....	Evansville Suburban and Newburgh Ry. Co.	Written train orders.	27.90	19 and 22	1 hour....		2.00
20 Indiana.....	Lonsville and Northern Railway and Lighting Co.	Semaphore signals, telephone, written orders.	31.39	12 to 21	30 minutes, 1 and 2 hours....	5	2.00
21 Illinois.....	Chicago, Harvard and Geneva Lake Ry. Co.	Telephone....	11.02	20	1 1/2 to 3 1/2 hours.		2.00
22 Illinois.....	Chicago and Milwaukee Electric R. R. Co.	Telephone....	132.80	30 and 35	15 minutes.	6	1.50
23 Illinois.....	Chicago and Joliet Electric Ry. Co.	Automatic block.	82.50	9 to 20	10 to 20 minutes, city; 30 minutes and 1 hour interurban.	7	1.35
24 Illinois.....	Illinois Traction system.	Telephone....	118.82	25 and 28	1 hour.	10	2.00
25 Michigan....	Grand Rapids, Holland and Chicago Ry.	Telephone....	70.00	20 to 29	30 minutes, 4 months, 1 hour, 8 months.	10	43.33
26 Michigan....	Detroit, Flint and Saginaw Ry. Co.	Telephone....	13.75	14	1 hour.		1.67
27 Michigan....	Detroit and Port Huron Shore Line Ry.	Telephone....	127.72	22	30 minutes and 1 hour....		
28 Michigan....	Detroit, Jackson and Chicago Ry.	Telephone....	104.80	16 to 22	30 minutes.		
29 Michigan....	Detroit, Monroe and Toledo Short Line Ry. Co.	Telephone....	74.46	21	1 hour....		
30 Iowa.....	Iowa and Illinois Ry. Co.	Telephone....	60.38	28	1 and 1 1/2 hours....		2.00 to 2.50
31 Iowa.....	Interurban Ry. Co.	Telephone....	79.05	23 and 24	1 1/2 hours.		1.75
32 Iowa.....	Cedar Rapids and Iowa City Railway and Light Co.	Telephone....	30.50	18	1 hour.	8	2.50
33 Missouri....	Southwest Missouri R. R. Co.	Telephone....	64.57	14 to 18	30 minutes.		1.50
34 Kentucky....	Louisville and Eastern R. R. Co.	Telephone....	23.82	25 and 34	30 minutes and 1 hour....	10	1.75
35 Colorado....	Colorado Springs and Cripple Creek District Ry. Co. electric division.	Telegraph, same as steam.	18.42	12 and 14	30 minutes and 1 hour....	5	1.67 and 2.00
36 Washington..	Spokane and Inland Empire R. R. Co.	Telegraph and telephone.	222.19	33	45 minutes to 5 hours....	(10)	1.00 and 2.50
37 California....	Pacific Electric Ry. Co.	Telephone....	454.20	16 to 30	5 to 30 minutes.		1.50

1 Less than one-tenth of 1 per cent.

2 Nearly all.

3 Total, 5; interurban, 19.

INTERURBAN RAILWAYS.

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INTERURBAN RAILWAYS: 1907.

[special schedule of inquiries.]

ESTIMATED PROPORTION OF PASSENGERS WHO ARE CARRIED—		Proportion of total steam and electric passenger traffic carried by electric lines.	Effect on local business of steam railways.	Proportion of earnings from freight and express to total railway earnings (per cent).	Character of freight and express carried.	Remarks regarding freight and express.	
Wholly within towns (per cent.).	Between towns (per cent.).						
10.0	90.0	2 lines get practically all.	Reduced fares; decreased local business. No means of comparing.	2.6	National Express Co. business and small parcels.	Think prospects good—propose going in on larger scale.	1
10.0	90.0			(1)	None.	Believe freight and express service to be a great convenience and to help build up passenger service.	2
	33.0		None in recent years.		None.		3
50.0	25.0		Run cars oftener.	4.0	Freight.	Prospects for future development good.	4
	(3)		Reduced fares.	0.6	Meat, grain, groceries, green stuff, dressed lumber, iron castings, furniture, fish.	Less profitable than passenger, but are well pleased with growth.	5
	80.0	Larger.	Does not injure steam roads.	24.2	None.	None handled.	6
			Do not know.		Milk, farm produce.	Expect steady increase.	7
	100.0			9.1	None.	No franchise for carrying freight.	8
					General freight.	Usual interchange arrangements on through billing.	9
	100.0	Practically all.	Take all local traffic.	0.7	Groceries, ice cream, fruit, meat, beer 50 per cent.	Agents at terminals handle freight; prospects very good.	10
35.0	40.0	Local traffic almost exclusively.	Practically all taken away.	5.0	Milk, farm produce, groceries, tobacco, etc.	Should show rapid increase.	11
20.0	80.0	No competition.	Reduced on short hauls.	27.3	Merchandise, all kinds.	Depends on growth of country.	12
				0.3	Handled by Electric Package Agency.		13
31.3	66.7			7.7	Merchandise, all kinds.	Records show regular increase.	14
5.0	100.0		Can not say.	12.0	Crushed stone.	Can not say.	15
	95.0	Five to one.	Slight.	10.8	Merchandise.	Interchange of local business with steam roads would increase traffic 75 per cent.	16
5.0	95.0			4.9	General merchandise; package freight.	Could be greatly increased.	17
	(2)			4.9	Merchandise.	Freight so light, was discontinued.	18
			Has been reduced about 90 per cent.	23.5		Good field for development.	19
	100.0		Can not say.	1.2	All kinds of freight except live stock.	Limited future development.	20
1.0	99.0	No steam road connecting.		52.9	General freight and express.	Increasing yearly.	21
2.0	98.0			13.7	Stone, coal, gravel, milk, water.		22
2.9	97.1	Carry twice as many as 3 combined steam roads.	Eliminated stops.	0.6	95 per cent freight, limestone; 80 per cent express, meat, beer.	Charter compels carrying of freight; business not profitable.	23
	98.0	Earnings per mile more between common terminals.	Not affected, as a rule.	12.1	All commodities.	Will equal passenger receipts if developed; district soliciting agents.	24
25.0 to 30.0	70.0 to 75.0	20 to 30 times as great.	Reduced fares. Travel has been reduced from 80 to 95 per cent.	20.8	General merchandise, 80 per cent; grain, 5 per cent; fruit, 10 per cent; other farm produce, 5 per cent.	Would increase greatly with through railroad connections.	25
	100.0			6.2	Cheese, groceries, fresh meat, milk, etc.	Carried in baggage apartments. Can be largely increased.	26
				13.4	Groceries, provisions, dry goods, hardware, milk, butter, eggs, fruits, vegetables.	Still in its infancy.	27
				16.2	Groceries, provisions, dry goods, hardware, milk, butter, eggs, fruits, vegetables.	Still in its infancy.	28
				12.5	Groceries, provisions, dry goods, hardware, milk, butter, eggs, fruits, vegetables.	Still in its infancy.	29
	90.0	Quadruple local business.	Withdrawn local trains.	14.1	All kinds.	Can be greatly increased.	30
	100.0			25.8	Coal and brick.	More profitable than passenger.	31
4.0	90.0	Practically no competition.		15.1	Merchandise, 40 per cent; stock, 35 per cent.	Less profitable than passenger.	32
26.0	75.0		Impossible to determine.	1.2	Fruits and vegetables.		33
	100.0	Very much in excess.		14.2	General merchandise.	Should be large and very profitable.	34
	100.0	95 per cent.	Electric line built to relieve steam line.		Steam trains handle.	Steam trains will always handle.	35
75.0	25.0		Reduced fares.	24.1	Agricultural products, 20 per cent, mining products, 3 per cent, lumber, 5 per cent; manufactured articles, 11 per cent.	Great possibilities for future development.	36
44.0	56.0		Material extent.	6.7	Crushed stone, building commodities, fruits, vegetables.	Increasing steadily.	37

* Over 3 miles.

* City, 1; Interurban, 22.

Speed of interurban travel.—The average speed of cars for an entire trip is governed to some extent by the length of the run, but high rates of speed are maintained over large networks, as, for example, that of the Illinois Traction system, with 418.82 miles, which shows an average rate of 25 and 28 miles; the Spokane and Inland Empire reports an average of 33 miles an hour; the Toledo Urban and Interurban, one of 35 miles an hour; and the Chicago and Milwaukee Electric Railroad Company (Ill.), with 132.86 miles of track, has speeds of 30 and 35 miles per hour. In some instances, however, the speed falls as low as 12 miles an hour, or even less. The determining condition in this respect is the development of limited service. At the beginning of 1907, out of 26 of the leading interurban lines in Michigan, Indiana, and Ohio, 17 were giving limited service. One of the first of these roads to offer such service was the Cleveland, Painesville and Eastern Railroad (Ohio), operating a fast car which ran from Painesville into Cleveland in the morning and back in the evening. The Indiana Union Traction Company was also a pioneer in giving limited service—the idea being to accommodate the people of the larger towns and cities. Such cars or trains do not stop at the smaller towns or hamlets, but only at stated points, and thus compete very closely and on nearly equal terms with the steam railroads making similar stops. This class of service, especially where connecting lines have adjusted their limited trains to each other, has brought to the interurban lines a variety and an amount of business that could not otherwise have been secured. The bulk of the business on limited trains does not, however, come from long hauls, but the long haul is a high class of business and has been extensively catered to, although to some extent there has been a reaction in regard to the nature of accommodations offered. Some of the earliest limited trains furnished all the comforts and luxuries of Pullman parlor cars, with the accompaniment of reading tables and literature, and in some instances, buffet service for light luncheon, etc. For such features an excess fare was generally charged, but in Ohio, at least, the excess fare has been entirely eliminated and the present standard excludes no one really needing the fast-time service, but unable to pay for the high-class accommodations.

Use of limited cars.—The practice has been taken up on some of the systems of making every other car a limited one, this being a practice in Indiana and to some extent in Ohio, but the method more generally followed in Ohio has been to operate from 2 to 5 limited trains a day in addition to the regular local service. In Indiana, with the object principally of keeping off the local traffic between adjoining towns, which necessarily lowers the speed possible with a limited service worthy of the name, a graduated excess fare from 5 to 25 or 30 cents, according to distance, has been the rule. In

Table 170 a column summarizes the frequency of passenger cars on the main interurban lines of 37 roads tabulated, which in several instances reported a frequency of every hour, associating this with a schedule of from 20 to 35 miles per hour for the entire trip. It will also be noticed from the table that on several of the roads the average distance traveled by each passenger was above 10 miles, which implies a liberal use of the limited methods of operation. Many of the roads have printed schedules and time-tables, like those of the steam railroads. The table also shows a very large proportion of passengers carried between towns, but this does not bear upon the limited service unless it is definitely connected with towns that are wide apart. The experience of interurban systems appears to have been that the residents in the rural districts are as a rule short-distance riders.

Rates of fare.—A very significant column in the table is that showing the estimated average fare per mile. While in some instances the average rate was 2 cents, in several others it fell even as low as 1½ cents. While it is possible that 2-cent fare laws may have had some effect in this direction, it is more likely that competition with steam railroads has been the determining factor. The Cleveland, Painesville and Eastern reported the fare as from 1 to 2 cents. The minimum fare for one ride, however short, may be taken as 5 cents, from which unit the scale falls in proportion to the length of the trip. It is obvious, therefore, that those riding short distances pay in proportion a higher rate of fare, but it is to be borne in mind that the actual cost of stopping and starting a heavy interurban car is considerable, and that frequent stops involve an appreciable consumption of electrical energy as well as wear and tear not observable in continuous operation for a long run.

Number of stopping points.—Outside of limited service, which frequently has its stations at least 10 miles apart, practice differs widely as to distance between stopping points and appears to be independent of the length of road. Some roads will make one stop to the mile, while others will have as many as five stopping places in the same distance. Thus, for example, the franchise of the Detroit, Ypsilanti, Ann Arbor and Jackson system (now part of the Detroit, Jackson and Chicago Railway) requires it to stop trains at any point along the line where a prospective passenger may give the signal, under which conditions it is obviously difficult to maintain a rate of speed much, if any, higher than that obtaining within city limits. The tendency on most of the systems has been to avoid private stations and to stop only in towns and at important road crossings. When it is considered that 400 miles in a day has become possible on regular heavy roads of the latest type, it will be seen that the limited system is an absolute necessity and that the interurban roads themselves have had to come to a sharp differ-

entiation between the limited cars and those which may be compared with the local or way trains on steam railroads. Some other differences of systems, affording a compromise between way and limited service, have been developed, as, for example, a chartered car on the Eastern Ohio Traction line, known as the "Blue Blood Special," operated for the benefit of wealthy residents in the suburbs, who club together for its operation. It stops at no points in the city, and in the country only where members of the club who desire to board the car hold up yellow membership cards, indicating their right to travel thereby.

With regard to the baggage for passengers on limited trains, various practices prevail. Some of the lines carry baggage free, either on the same train or on the regular train immediately preceding or following. This depends to some extent on the provisions made on the limited cars for handling baggage.

Freight and express service.—The statistics on financial operations show that the street and electric railways of the whole country earned \$5,231,215 from freight service and \$1,560,802 from their express business, which income, it will be understood, was largely due to the work of the interurban roads. Table 170 throws some light on the conditions applying to interurban lines, and it will be seen that in several instances the proportion of the earnings from freight and express is very large. One system—the Chicago, Harvard and Geneva Lake Railway—reports as high a proportion as 52.9 per cent; six other roads, proportions ranging from 20.8 per cent to 27.3 per cent; and several of the systems report below 5 per cent and two even less than 1 per cent. In furnishing information on this point one of the roads reports that it carries freight because it is required to do so by its charter, but evidently regarded it less as a privilege than as a nuisance and as an interference with an efficient passenger service.

The variety of freight and express carried is remarkable, and includes all kinds of commodities and merchandise. Two of the systems report that a large percentage of their business, in one instance 50 per cent of the total, is derived from the transportation of beer. In many instances milk, vegetables, and other farm produce in season constitute a large percentage of the traffic, but these are supplemented by building materials, brick and stone, lumber, gravel, iron castings, water, groceries, fish, and tobacco. As to this kind of traffic the remarks indicate a general appreciation of the opportunity afforded to serve the community and to secure an increase of income. It would appear that in some cases a high state of development has already been reached, while in others increase is expected; although here and there it is intimated that for various causes the development will be limited, and that steam trains rather than the trolley systems will always handle the freight. To a certain extent, of course, growth will depend upon the increase of popu-

lation in the region traversed, but evidently much depends upon the energy with which the managers seek to cultivate this department. Various forms of activity in this direction have already been discussed in other parts of the text in connection with the development of the business of interurban lines, but, in addition, other methods employed are worth enumerating.

The Electric Package Agency of Cleveland is an association representing five of the traction properties in that city, each of which furnishes its own equipment, crew, and maintenance, while the package agency furnishes a messenger on each car. At the beginning of 1907 this agency was operating apparently over about 550 miles of road, with 40 wagons in various towns and cities, 14 messengers, and 53 agents, who either devoted their time entirely to the package service or divided their work between the local railroads and the package agency. This organization was managed at that time by an executive committee of three; the earnings of each road are kept separate, and after the operating expenses of the package agency, amounting to about 50 per cent of the receipts, are deducted, the roads receive the remainder, from which the train-operating expenses and cost of maintenance are deducted. The package agency also handles the baggage transported over the different roads and is credited with 10 cents per trunk. On some of the roads, such as the Cleveland and Southwestern (now part of the Cleveland, Southwestern and Columbus Railway Company), the bulk business handled in package cars is unloaded at the outskirts of the city, and the entire earnings go to the road itself, and not to the package agency. The rates made by the agency were somewhat higher than those of electric roads elsewhere; one rate covered fruit, groceries, eggs, vegetables, etc., and was usually 10 cents lower than the regular rate on commodities; the higher rate, however, tended to limit the amount of farm produce handled. The lowest rate was 30 cents per hundred for the special class within 35 miles, and the highest rate, 75 cents to Toledo, 120 miles. Carload stuff was handled, when required, at the rate of 50 cents a car mile for the whole, including the return of the empty car, and business was interchanged with other express companies and with the lake-boat lines. Where roads entering Cleveland, such as the Eastern Ohio Traction Company, have not been in the electric package arrangement, goods have been handled on express cars run to the package agency's station, a portion of which has been leased for such service.

Handling of milk.—The handling of milk may be taken as an example of the development of these various items of the freight business. The Eastern Ohio Traction Company, traversing a rich farming district, reported that it billed 5,000 to 6,000 gallons daily in 1906, and that its receipts from milk transportation alone had reached as much as \$25,480 in a

single year. The company has made a flat rate of 2 cents per gallon for any distance, placing all the farmers along the line on an equal footing, and thus increasing the gross quantity handled; has encouraged the farmers to build platforms at which cans can be picked up; and will stop for any number above three. Tickets, which may be attached to the can, are sold for this traffic, and the cans are returned free to the farmers. The Cleveland and Southwestern system reports handling an average of 800 cans a day, with receipts in one year approximating \$20,000. As the bulk of this milk is delivered to distributing wagons at the city limits, the company gets all the receipts up to that point. Rates for dairy produce vary according to the distance. A higher rate is charged for cream than milk.

In Michigan the quantity of milk handled by the Detroit United Railway system was so great as to require special trains, one of which is operated on each of the interurban divisions of this system, and milk is also carried in the early morning baggage cars. The milk train on the Flint division is made up of a motor car and a trailer fitted with racks for carrying cans on each side of a central passage way. The charge, based on the length of the haul, varies from 6 to 10 cents per 10-gallon can. In order to make a proper accounting of the system a two-part tag is used; one part is taken from the can by the conductor, while the remaining part is left on and serves for the return of the empty can. Creamery companies which pick up milk through the country districts are purchasers of a large quantity of tickets. Any number of the tickets are sold at one time to private shippers, but the purchases are usually made in lots of from \$2 to \$5 worth. About 220 cans of milk were being handled daily over the Detroit, Ypsilanti, Ann Arbor and Jackson Railway (now part of the Detroit, Jackson and Chicago Railway), the cans being carried in freight or express cars with a two-part ticket and at a charge of 10 cents per can regardless of distance.

In Indiana the Indiana Union Traction Company and the Indianapolis and Northwestern Traction Company handled milk on a three-part ticket, one part of which is torn off by the conductor, one serves as a receipt for the customer, and the third answers for the return of the empty can. During the earlier part of the census period the cans were carried in the baggage department of the regular passenger cars, but more recently special milk trains have been put on. On the Indianapolis and Cincinnati Traction system a charge of 1½ cents per gallon has been made regardless of distance hauled, with three-part tags in different colors for cans of 3, 4, 5, and 8 gallon capacity. Loading platforms have been built wherever the shipments justify the expense, and many private loading stations are erected by the shippers. All this milk is carried in express cars. About 2,000 gallons of milk per day have been handled by the Indianapolis, Columbus

and Southern Traction system. For hauls of less than 10 miles the charge is 1 cent per gallon; above that distance 1½ cents, the rates including the return of the empty can. Shippers are required to buy 100 tickets at a time and to erect their own loading platforms.

On the lines of the Terre Haute Traction and Light Company no tags have been employed, but the milk is billed in the same way as freight. Farmers are supplied with blank billheads which they fill out for each shipment, and settlement at the rate of 1 cent per gallon is made at the office of the company every Saturday. Over the system of the Fort Wayne and Wabash Valley Traction Company, 500 gallons of milk are handled daily, for which the shippers make out a bill of lading, leaving it on the shipping platform with the cans, and the train crew that picks up the cans makes out the waybill. The shippers make monthly settlement at the rate of 10 cents per full can and 2½ cents for the return of the empty cans, this charge being regardless of distance.

With regard to the freight and express business in general, the following interesting statement may be quoted from the report of the Chicago and Joliet Electric Railway Company in reply to the special inquiry on the subject:

Our ticket agents at the several stations along the line handle express traffic. No special facilities for handling freight, which is almost exclusively stone; and our service consists in switching the cars from the quarry tracks to the steam railroads.

The freight cars do not make regular trips, but are sent to the quarries as required for switching purposes. Up until 1906 all express matter was handled on the regular passenger cars. Since that date a combination car makes one round trip between Joliet and Lemont daily. We have no statistics upon which to base the tons carried, as the switching is charged for by the hour irrespective of the load, and express matter is handled at so much per package.

We do not believe that there is much future for the freight business along this line, as we are merely used when the steam roads can not perform the service. Furthermore, we are not particularly anxious to develop it, as at the season of the year when the stone business is at its height, namely, in the summer time, our passenger traffic is so heavy that the handling of the freight interferes with it, and as the passenger business is much more remunerative than the freight business, we are indifferent as to the growth of the latter.

It is our opinion that the freight business is unprofitable when it is handled in competition with the steam roads and where the freight handled is of the coarser, heavier kind. Where, however, it partakes more of the nature of an express business—that is to say, light and perishable matter upon which the shipper is willing to pay a higher rate in consideration of quick and frequent service—we believe that it is fairly remunerative.

Use of special cars.—The plan of handling express and freight matter on combination cars is declining, except in the case of a few roads which distinguish between freight and express traffic and do considerable fast-express business in the combination cars. Many roads now have special cars for such service, but the designs for such cars are as varied as for those for passenger service. On the Western Ohio Railway and on lines in the vicinity of Dayton and Detroit old Man-

hattan Elevated cars have been transformed into trailers for this purpose; the various branches of the Indiana, Columbus and Eastern Traction system have several 60-foot express cars with large carrying capacity, and the express motor cars built for the Scioto Valley Traction Company are 45 feet long and equipped with 125-horsepower motors and a train-brake system for handling one or more trailers. The Dayton, Covington and Piqua Traction Company has a 56-foot express car of unusually substantial construction and large capacity, fitted with an adjustable platform with roof, so that it may be used as a line-construction car. On the Cleveland and Southwestern the express car is 54 feet long, built with heavy floor frame and bumpers and designed to carry at least 20 tons; two double doors on each side as well as doors at each end render it very convenient for handling theatrical scenery or other long or bulky articles.

Mail data.—There is little that is new to add to the former report of 1902 on the subject of the handling of United States mail by the interurban roads of the country. As in most respects typical, may be cited the general practice in Ohio, where nearly all the inter-

urban roads handle mail matter in sacks and derive an income on the basis of a fixed amount per mile per sack. In 1906-7 three roads—the Eastern Ohio Traction Company, the Toledo and Western Railroad, and the Cincinnati, Georgetown and Portsmouth—covering districts not traversed by steam roads, had provided for regular mail-car service a special compartment fitted up for the distribution of mail en route, and for this service they receive 3 cents per mile per sack for pouched mail, and 7½ cents per car mile. On the Cincinnati, Georgetown and Portsmouth the mail compartment is partitioned at one end of a 56-foot express car. The Toledo and Western road and Eastern Ohio road, like many others, carry the mail on passenger cars. The interurban systems are constantly endeavoring to secure more of this business, notwithstanding the fact that the rate is not regarded as attractive nor the traffic remunerative.

Opinions from steam railroads.—The opinions of steam railroads have been solicited as to the effect upon their business of the competition of electric interurban railroads, and some very interesting statements have been furnished, a few of which may be cited.

STREET AND ELECTRIC RAILWAYS.

TABLE 171.—REPLIES OF STEAM RAILROADS REGARDING

	EFFECT OF ELECTRIC LINES IN DECREASING PASSENGER TRAFFIC BETWEEN COMPETING POINTS.	EFFECT ON LONG-DISTANCE PASSENGER TRAFFIC.	EFFECT ON PRACTICE OF STEAM LINES.	
			Passenger.	
			Fares.	Number of trains.
1	Largely.....	None.....	Not reduced.....	No changes in service.....
2	50 per cent some places.....	Not appreciable.....	Not reduced.....	Improved service.....
3	Material decrease.....	No data.....	Not reduced.....	No change.....
4	90 per cent 10 miles or less.....	Increasing, trolley being faster to steam road.....	Not reduced.....	Decreased local trains to minimum.....
5	All short-haul business.....	Not appreciable.....	Not reduced.....	Two branches discontinued.....
6	Probable decrease; no data.....	Assume some increase.....	Reduced 25 per cent.....	No change.....
7	90 per cent short-haul business.....	None.....	Reduced in some cases.....	No change.....
8	No competition; better service mutually.....	Increase; can not say to what extent.....	Not reduced.....	Discontinued some stops.....
9	Varies.....	Not appreciable.....	Reduced on one branch.....	Increased.....
10	More or less affected between all competitive points.....	Not appreciable.....	Reduced in four instances.....	Decreased; abandoned 1 station.....
11	Traction gets all passengers.....	No reply.....	Not reduced.....	No change.....
12	78 per cent first year.....	Little, if any.....	Not reduced.....	No change.....
13	No statistics.....	Considerable increase one or two points.....	Reduced.....	No change.....
14	50 per cent on one line.....	None at all.....	Commuter rates introduced.....	Decreased.....
15	40 per cent some places; others not perceptible.....	None.....	Not reduced.....	Abandoned stations and trains decreased.....
16	Very materially reduced.....	None.....	Reduced.....	Abandoned stations.....
17	40 per cent.....	None.....	Not reduced.....	Decreased; abandoned stations.....
18	No data; think inconsiderable.....	None.....	Not reduced.....	No change.....
19	Decrease; can not say to what extent.....	Increase; can not say to what extent.....	Reduced fares.....	Decreased; abandoned stations.....
20	Estimate 50 per cent.....	None at all.....	Not reduced.....	No change.....
21	50 per cent, one line.....	None.....	Not reduced.....	No change.....
22	Loss \$34,000 first year.....	None.....	Not reduced.....	No change.....
23	Large decrease.....	None.....	No reduction.....	No change.....
24	Greatly reduced local earnings.....	Very little.....	Reduced fares.....	Decreased; abandoned several stations.....
25	No figures; local conditions govern.....	No figures.....	Reduced slightly.....	No change.....
26	Take considerable short-haul business.....	Contribute to long-haul business; doubtful whether through business received offsets loss of local travel.....	Have made no effort to compete.....	
27	Governed by local conditions.....	Not apparent.....	In twelve instances reduced.....	Decreased; abandoned 14 stations.....
28	More or less seriously between important points.....	Scarcely noticeable.....	Reduced.....	Decreased; abandoned 3 stations.....
29	No accurate figures; varying conditions at different places.....	Not appreciable.....	Reduced in a half dozen instances.....	Decreased.....
30	Between all important points.....	Not to any apparent extent.....	Reduced in four instances.....	Abandoned 4 stations.....
31	Loss from 20 to 30 per cent where there is competition.....	Very little.....	No reduction.....	No change.....
32	From 30 to 40 per cent.....	No increase.....	No reduction.....	No change.....
33	No data.....	No data.....	No reduction.....	Decreased.....
34	50 per cent.....	Not at all.....	Not reduced.....	No change.....

¹ Numbers 1 to 10 are replies from roads on the Atlantic seaboard; numbers 11 to 32 from the North and Middle Central states; numbers 33 and 34 from the Southwest and Pacific coast.

THE EFFECT OF ELECTRIC-RAILWAY COMPETITION: 1907.¹

EFFECT ON PRACTICE OF STEAM LINES—continued.		ULTIMATE AND GENERAL EFFECT ON STEAM LINES.	
Freight.	Passenger.	Freight.	
None.....	Further injury to local travel.....	Problematical.....	1
Not serious.....	Serious competition.....	Continuation of present effect.....	2
Not appreciable.....	Continuation of present effect.....	Not much development expected.....	3
Slight.....	Injury on short hauls.....		4
None.....	Will ultimately build up long-haul traffic.....		5
No reply.....	Further loss.....	No reply.....	6
Decrease.....	Electric and steam lines will work together to advantage of both.....	Continue to feel competition.....	7
No injury.....	Will do two-thirds of business 8 miles or more.....	Will not be affected.....	8
Not material.....	Losses on 15-mile distances.....	Can not say.....	9
Not material.....		Would not venture to state.....	10
None.....	Further injury on short hauls.....	Injury on short hauls.....	11
Active competition—fruit and vegetable—short hauls.....	Injury will result from competition at more points.....	Continuation of present conditions.....	12
Slight increase in volume of building material hauled.....	Injury.....	Conjectural.....	13
None.....	Injury.....	May lose freight and express short hauls.....	14
	No opinion.....	No opinion.....	15
Not extensive.....	Further injury.....	No beneficial effects.....	16
Loss of hauling milk.....	Continuation present detriment.....	Increasing competition.....	17
Have lost only business that steam roads will not accept.....	No injury as long as present fares are maintained.....	Ultimate gain.....	18
Considerably reduced.....	Injury.....	Probably further loss of business.....	19
No reply.....	Serious competition that will further reduce revenue.....	Revenue will be decreased.....	20
Have lost considerable package and other less-than-car-load local freight.....	Serious injury, but not more than in the past.....	Greater decrease.....	21
Have lost considerable package and other less-than-car-load local freight.....		Greater decrease.....	22
No reply.....	Formidable competition on short hauls. Look for further reduction in revenue.....	Decreasing revenue.....	23
Slight.....	Great injury.....	Can not say.....	24
None to any extent.....	Depends on local conditions.....	Depends on local conditions.....	25
Not serious.....	Unable to say.....	Will lose greater part of short-haul traffic.....	26
Not noticeable.....	Injury to hauls of 15 to 20 miles or less.....	Impossible to state.....	27
Not material.....	Further losses between short-distance points.....	No opinion.....	28
None to any extent.....	Losses on 10 to 20 mile distances.....	No opinion.....	29
None to any extent.....	Extensions planned which will cause serious competition for local traffic.....	Impossible to state.....	30
Comparatively slight.....	Probably no further injury.....	No injury anticipated.....	31
None.....	An injury.....	More competition.....	32
Impossible to state.....	Serious competition for local traffic.....	Impossible to state.....	33
None.....	Further damage.....	None anticipated.....	34

In one or two instances the information given is confidential, the companies asking that they be not identified with the data furnished. Thus one of the large railroads of the country reports that it comes into competition with interurban railway systems at 7 large cities and a large number of intervening towns, and that altogether it is in competition with no fewer than 63 electric railways. This company has no specific records as to the amount of traffic lost, but the trolley is declared to be a constant menace to the revenues of steam railroads for short-haul or suburban business, the competition being on unequal terms, owing to the smaller amount of capital invested in the trolley systems for track and terminals, and the cheaper operating expenses, cheaper labor, and lighter equipment. Fares on this road have been reduced and stations have been abandoned, but the service of the road is improving constantly, although not so much on account of trolley competition as a part of a sustained policy. In other words, the policy of the road is to ignore electrics rather than to make a constant effort to meet their competition.

Another large system, the Delaware and Hudson Company, which is interested in electric railways, reports no competition with any electrical lines, but connection with 6 of them, serving in common 17 towns and cities. This company says that the efforts of the steam railroad and the traction companies have been to better the service rendered, so arranging their schedules that a through service convenient for the public has been brought about. The electric lines doing the local business are usually in more satisfactory shape to handle it than the steam lines, while the latter do the through business more satisfactorily than the electrics. There has been a tendency to eliminate unimportant stops on the steam lines so as to better the through service, and a corresponding tendency to increase the number of stops on the electric lines. The general effect of the electric roads has been to develop travel, as they take the travelers short distances in a satisfactory manner and discharge them at convenient locations; steam railroads do not render this service so well. The two systems working together, however, afford the public a better service than can be given by either alone and thus the revenues of both are increased. There has been no reduction in passenger rates other than that brought about by state laws. With regard to freight, it is noted that the electric lines which give a satisfactory passenger service with frequent stops can not do so in connection with a freight service. They can, however, operate express service successfully, but this suffers delays when the attempt is made to handle large or heavy packages, and interferes with the passenger schedule. It is believed that the tendency will be toward the curtailment of freight service and an increase in small-package delivery and mail service,

but the steam railroads will not be affected to any great extent. "Usually where electric lines have attempted a commutation or a through high-speed passenger business such service has been rendered at a loss, and the tendency will be toward the perfection of the local service working in connection with the steam railway."

The Central Railroad of New Jersey finds itself in competition with 10 electric-railway companies in 33 towns and cities in Pennsylvania and New Jersey, and reports that these lines have taken practically all the short-haul business, but that the long-haul traffic is not appreciably affected. The only change resulting from competition has been the abandonment of passenger service on the Cumberland and Maurice River and the Nanticoke branches. It is anticipated that the interurban lines will ultimately build up territory served by steam, and will thus tend to increase the long-haul travel of steam-railroad companies. At the eastern terminal of the system serious competition was anticipated between New York and Newark, owing to the opening of the Hudson River tunnel. The Lehigh Valley Railroad Company reports contact with 29 electric-railway systems touching it at 31 places, 14 of the systems being in competition with it. There has been a considerable loss on distances of 10 miles or less, with the result that trains for local service have decreased to a minimum. There has, however, been very little change in freight. It is believed that the trolley serves as a feeder to the steam railroad and results in an increase of long-haul business.

The Atlantic Coast Line Railroad Company, operating in North Carolina, Virginia, and Florida, reports that the local traffic is largely affected, but least in the winter months, when, owing to tourist travel, the proportion of the railroad increases, as the railroad gets nearly all the travel for through passengers, especially those with baggage.

The New York, Chicago and St. Louis Railroad Company has reduced fares in certain zones, but notes no other change. There has been a considerable increase in long-distance travel fed by the electric roads, but these roads are expected to affect the movements of people between local stations and to increase slightly freight for building materials, etc., required for the development of the suburbs.

The Chicago, Cincinnati and Louisville Railroad is a somewhat novel example, and possibly unique, in being a steam road built after the electric-traction line existed. It parallels this traction line for 5 miles and reports that the interurban system between those points has practically all the passengers; it believes that traction competition will surely injure steam railroads on short-haul business. There has been no freight competition, but it is expected that the interurban railways will work up a large merchandise business, "especially in the huckster line."

The Chicago, Indianapolis and Louisville Railway Company has found itself since the last census in competition in Indiana with one interurban system. The reduced passenger traffic between the points paralleled amounted to 78 per cent in the first year; and there was also a reduction in freight of 50 per cent for fruit and vegetables for short hauls. Practically no change has been made to meet competition. The Cincinnati, Hamilton and Dayton Railroad Company reports competing with 11 electric companies at 24 places, with the result that fares have been reduced, traffic has been materially cut down on short distances, and some stations have been closed. No benefits have been felt, and further ill effects are anticipated. The Cincinnati, Lebanon and Northern Railway Company has competition in 4 towns, with a loss of 40 per cent on local passenger traffic. The cheaper construction, cheaper labor, and the penetration of towns that steam railroads only touch at the outskirts make the electrics a menace to the steam systems wherever they come directly into competition. The express and freight business has been affected only in the handling of milk, as most of the electric freight consists of farm produce carried formerly in wagons. The change of electric roads to standard gauge, with the demand for interchange of business on equal terms with the steam roads, is anticipated. The Toledo and Ohio Central Railway Company

competes with 3 electric lines in 7 leading towns. It is not known to what extent the competition has been felt, but the local passenger traffic is reported to have decreased, although long-distance traffic has increased. In a general way, the road reports reduced fares, decreased train service, and abandoned stations, and it anticipates a further loss of freight business.

The Baltimore and Ohio Railroad Company reports as to Pennsylvania, Maryland, West Virginia, Ohio, Indiana, and Illinois a loss in local traffic—at some points of 50 per cent. Freight competition is not serious, but passenger competition may become so.

In respect to the Western states, the Chicago, Milwaukee and St. Paul Railway Company reports competition with 5 companies touching 13 cities and towns in Wisconsin, Illinois, and Minnesota. The loss of traffic at some points is 40 per cent, but at others it is not appreciable; no long-distance electric travel has been developed. Trains have been decreased and stations abandoned between St. Paul and Minneapolis; otherwise no changes have been made.

Effect on local trade.—Another line of inquiry similar to that made in 1902 deals with the effect of interurban systems upon the business done by small or general merchants in the rural districts and by country stores, as well as the effect upon merchants in the larger towns to which the interurban roads bring rural customers.

STREET AND ELECTRIC RAILWAYS.

TABLE 172. EFFECT OF ELECTRIC INTERURBAN RAILWAYS

(Replies of local merchants to

	STATE.	Name of city or town reporting.	Large cities with which connected by electric railways.	Merchants' class of business.	Effect of electric railways on sales to people in town.
1	Massachusetts.	Braintree.	Brockton, Quincy, Boston.	Groceries.	Some decrease.
2	New York.	Syracuse.	Auburn, Oneida.	Department store.	Benefit.
3	New York.	Troy.	Albany, Schenectady.	Dry goods.	No injury.
4	Pennsylvania.	Erie.	Cambsaut, Ohio.	Department store.	No decline.
5	Pennsylvania.	Cambridge Springs.	Meadville, Erie.	Mercantile.	No injury.
6	Pennsylvania.	Quakertown.	Allentown, Philadelphia.	Dry goods, notions, groceries.	Opened another store to meet condition.
7	Ohio.	Alliance.	Canton, Salem.	Retail dry goods.	No decrease.
8	Ohio.	Chagrin Falls.	Cleveland.	Dry goods, carpets, etc.	No particular decrease.
9	Ohio.	Dayton.	Cleveland.	Dry goods.	No decline.
10	Ohio.	Kent.	Cleveland, Akron.	General merchandise.	No injury.
11	Ohio.	Massillon.	Cleveland, Akron, Canton.	Dry goods, carpets, wall paper, etc.	Business fallen off, but owing to other conditions.
12	Ohio.	Oberlin.	Cleveland, Elvira, Lorain, Norwalk, Wellington.	Clothing, tailoring.	No decrease.
13	Ohio.	Hulbard.	Youngstown, Sharon, Newcastle (Pa.).	General store.	Business increased in proportion to increase of population.
14	Ohio.	Youngstown.	Warren.	General dry goods.	No decline.
15	Ohio.	Perryburg.	Toledo.	Dry goods, clothing, hats, shoes.	No decrease.
16	Ohio.	Bowling Green.	Toledo, Findlay.	Dry goods, carpets, etc.	No decrease.
17	Ohio.	Crestline.	Mansfield, Bucyrus.	Dry goods, carpets.	Little loss.
18	Ohio.	Lima.	Dayton, Toledo, Fort Wayne (Ind.).	Dry goods.	No decrease.
19	Ohio.	Raywood (2 miles from electric line).	Columbus.	General store.	No decline.
20	Ohio.	Greenville.	Dayton.	Department store.	No decline.
21	Ohio.	Miamisburg.	Dayton.	Dry goods.	Some decline.
22	Ohio.	Xenia.	Dayton.	General merchandise.	Perceptible loss.
23	Ohio.	Harrison.	Cincinnati.	Clothing, furnishings.	Slight decline.
24	Ohio.	Franklin.	Cincinnati, Dayton, Hamilton, Middletown.	Dry goods, carpets, clothing.	No decrease.
25	Indiana.	Columbus.	Indianapolis, Louisville (Ky.).	Millinery, china, toys, etc.	No injury.
26	Indiana.	Greenfield.	Indianapolis, Richmond, Dayton, Ohio.	Department store.	Loss on one line more than made up on others.
27	Indiana.	Peru.	Indianapolis, Fort Wayne.	General merchandise.	Loss to large cities offset by gain from smaller ones.
28	Illinois.	Evansston.	Chicago.	General dry goods.	Can not say; business has grown.
29	Illinois.	Elgin.	Chicago, Rockford, Aurora.	Dry goods, carpets, millinery, shoes, etc.	Loss to Chicago, gain from smaller places.
30	Illinois.	Joliet.	Chicago, Aurora.	Steel manufacturing.	Some decrease.
31	Illinois.	Belleville.	East St. Louis, Collinsville, St. Louis (Mo.).	Dry goods.	No injury.
32	Michigan.	Adrian.	Toledo (Ohio).	Dry goods, carpets.	Gone other places to some extent.
33	Michigan.	Holland.	Grand Rapids.	Furniture, carpets.	Some decrease.
34	Michigan.	Jackson.	Detroit.	General dry goods.	No injury.
35	Michigan.	Ypsilanti.	Detroit.	Dry goods, cloaks, carpets.	Holds its own—would show increase but for Detroit.
36	Michigan.	Mount Clemens.	Detroit, Port Huron.	Dry goods.	Not much decrease since 1902.
37	Missouri.	Carthage.	Joplin, Webb City, Galena (Kan.).	Dry goods.	No injury.
38	Texas.	Dallas.	Fort Worth.	Department store.	Benefit.
39	California.	Santa Monica.	Los Angeles.	Dry goods.	Some decrease in rate of growth.

UPON RETAIL BUSINESS IN CITIES AND SMALL TOWNS: 1907.

a special schedule of inquiries.]

Effect on sales to farmers and people from smaller villages.	General opinion of merchants as to effect of electric railways.	Remarks.	
No increase.....	Generally an advantage. Trolley express cars would be a great help.	Will bring rural and urban population into closer relationship.	1
Some increase.....	Favorable.	Increase business in cities, decrease in villages.	2
Some increase.....	All consider it an advantage.	Increase trade from small towns.	3
Some increase.....	Advantageous.	Kills the corner grocery in the country, but helps the village and city.	4
Farmers come in bad weather and from a greater distance.	Generally glad to see more coming.		5
Increased rural trade.	Objection died out. Younger business class knows no other conditions.	Additional roads would benefit.	6
Some increase.....	Advantage to our town.	Business increased.	7
No change.....	Made local merchants work harder to hold trade.	Tends to build the cities in nearly every instance.	8
Some increase.....	Indifferent.	Very good effects.	9
Some increase.....	Generally favorable.	New line now under way will greatly help Massillon.	10
Farmers take advantage of electric roads.	Generally agree they are beneficial.		11
Increase from towns not formerly connected.	Very good.	Will abolish country stores; farmers coming to towns this size.	12
Some increase.....	Build up the town; increasing business.	Will cause more farming to be done on small farms and relieve congestion in cities.	13
Some increase.....	A decided advantage.	Further increase.	14
No change.....	Feeling prevails that they are a benefit.	Will increase population, increasing business. Improved shipping conditions.	15
Some increase.....	Divided.	The more the better.	16
No increase.....	Grocers lose some, furniture stores lose more.		17
Some increase.....	Want all we can get.	Bound to do good.	18
Too far from line.	Favor electric lines.		19
People get to town often who formerly did not come at all.	Advantage to business of town.	Will bring new business.	20
Takes more out than it brings in.	Disadvantage.	Large towns eat up small ones.	21
Decrease.....	Take business to large cities.		22
Small increase.	No change to town.	Increase in business would follow if road gained entrance into Cincinnati, making this a suburb.	23
Think it on the whole an advantage.	A great help to town.	Will improve towns if merchants progress as they should.	24
Increased patronage.	Advantage.	Will improve business.	25
Great increase.	They wonderfully aid prosperity.	Increased development means everything to increased business facilities.	26
Increased patronage.	Generally favorable.	Cheaper freight; more consideration for rights of shippers.	27
No farming trade.	Big town benefits at expense of smaller.		28
No change.....	Bring rural trade to large centers.	Both good and evil.	29
Increased patronage.	Incentive to trade.	More railways under construction which will improve trade.	30
Some increase.....	Some would wish to be without them.	Better for our city. Aid in delivering goods.	31
No change.....	Favor roads from smaller towns.	Prospects good.	32
Some increase.....	Ideas differ according to effect on business.	Will cut out the small dealer.	33
Some increase.....	Want all we can get.	Benefits all trading centers; large towns from smaller; small towns from farmers.	34
Farmers go to Detroit.....	Detriment. Force merchants to carry larger stock to keep trade.	Gradual but sure concentration of retail business in large cities.	35
No increase.....	Hurts small business houses. Concentrates business in cities.	Anticipate continued concentration.	36
Some increase.....		Anticipate betterment.	37
Some increase.....	Potent factors in material development.		38
Some increase.....	Feel competition with Los Angeles stores.	Build up towns but turn trade to cities.	39

The evidence is quite conflicting and the situation complicated to some extent by the development of the mail-order business, utilizing the express and freight systems for the delivery of goods ordered from distant points outside the specific area of interurban contact. A merchant at Miamisburg, Ohio, 10 miles from Dayton, where the fare is 25 cents the round trip, remarks as follows: Loss of trade; no gain of any kind; disadvantage to merchants; large towns eat up the small ones. On the other hand, a firm at South Bend, Ind., says: "We are not competent witnesses, having but recently embarked in a wholesale notion, hosiery, and underwear business. We want all the electric lines we can get, and are sure they are a great benefit to the business interests of any town." A firm at Holland, Mich., remarks that they lose trade to Grand Rapids; no benefit except some traders from a small village called Saugatuck; think electrics will cut out the small dealers. A merchant at Oberlin, Ohio, connected with Elyria, Lorain, Cleveland, Norwalk, and Wellington gives his experience as follows: No loss of business; increased 20 per cent in four years. Gain of country trade; merchants want the roads; anticipate the doing away with country stores; the farmers trading in towns this size. A merchant in a town in Ohio, 10 miles from Toledo, says that there is no change in trade, but benefit from better means of transportation. The feeling prevails that roads are a benefit, as they tend to increase population, and each new family brings a certain amount of trade to merchants. A general firm at Youngstown, Ohio, reports that the business has increased from smaller towns and doubled since 1905, but holds that this may be due partly to the enlargement of the store. A firm at Erie, Pa., states that business has

almost doubled since 1902, but that the increase is by no means all due to the interurban railways. They have benefited from smaller towns. A merchant in one of the towns in Michigan says that business holds its own, and would show increase but for the trade that goes to Detroit. A merchant in a Pennsylvania town remarks that the farmers come in bad weather when they formerly stayed at home, and they come from a greater distance; but that the interurban road kills the four-corner grocery in the country and helps the village and the city. An interesting comment is made by a merchant at Hubbard, Ohio, to the effect that the interurban roads will cause more farming to be done by small farmers—more truck farming—and will relieve congestion in the cities, as farming was being neglected for lack of easy access to town. A merchant at Glens Falls, N. Y., wrote: "Our system of electric roads which connects with the outlying villages has been a wonderful factor in building up the mercantile interests of this city. It connects with prosperous villages, and so far as I can learn it has been a source of development in all these villages. Of course, it has directly helped to augment all kinds of business in Glens Falls, and yet I can not learn that it has in any manner injured these smaller places with which it connects." Among other opinions offered are these: "Builds up the towns but turns trade to the cities." "Cheaper freight and more consideration of rights of shippers." "Benefits all trading centers, large towns from smaller, and small towns from farmers." "Will bring rural and urban population into closer relation, to the advantage of both." "The more, the better." "Gradual but sure concentration of retail business in large cities."

CHAPTER V.

FRANCHISES, PUBLIC REGULATION, AND PUBLIC OWNERSHIP.

The report of 1902 contained an exhaustive discussion of franchises, public regulation, and municipal ownership of street railways. It dealt comprehensively with all the relations between the companies, the municipalities, and the public, and may still be referred to for general data as to the principles and methods adopted in regard to franchises, regulations of fares, car licenses, percentages exacted of income, publicity of accounts, and other conditions. It is not intended, therefore, that the present report shall cover the same ground, for while, during a period notable in American politico-social development for its drastic remodeling of all the terms under which corporations exist and do business, changes have taken place along all these lines, the main body of legislation remains practically the same, except possibly in New York and Wisconsin.

For the census of 1902 the general schedule of inquiry for street-railway companies contained a number of special inquiries as to their franchise rights and obligations. The information obtained in this manner was supplemented by that secured from similar special inquiries addressed to the mayors of cities, and upon this data was based Chapter IX of the report, supplemented by a digest of state laws and typical local ordinances of states where street railways had enjoyed notable development.

Municipal-taxation methods.—It is not the intention to repeat this elaborate treatment in the present report. The questions as to franchises were omitted from the schedules for 1907 addressed to street-railway companies, and the series of questions submitted to mayors of municipalities related more particularly to changes in the power of officers or boards to grant franchises, and the terms of franchises granted, during the intervening census period. The aim of the present report will therefore be rather to indicate the tendency of the times in granting franchises, by setting forth the differences between present local practice and that in vogue at the time of the former census. The special schedule for 1907 repeated, however, some general inquiries as to method and rates of taxation, and as to reservation by municipalities of any rights to purchase upon expiration of the term of any franchise.

At the census of 1907 explicit questions with regard to taxation were introduced in the special schedule addressed to mayors, as follows:

3. What municipal taxes are assessed on the property of street-railway companies and on what basis?
 - a. Real estate and buildings?
 - b. Track and physical property in the streets?
 - c. Rolling stock?
 - d. Franchises?What, if any, payments to the city are required other than those noted above?
4. Amount of payment, if any, by all street railways to the city for the last fiscal year, not including ordinary taxes, such as paid by other classes of property?

The replies received in answer to inquiries 3 and 4 gave interesting information; but it was impossible to reduce them to concise order. Some schedules report the *method* of making assessments and the *rate* of taxation under the headings *a, b, c, d*, while others report the *amounts* paid into the city treasury, without stating the actual value of real or personal property on which such amounts were levied. Inquiry 4, when answered, in some cases duplicated the amount previously reported after *d*, under inquiry 3. Even where inquiries have been similarly interpreted by persons furnishing information, the answers disclose the widest possible difference in municipal practice in the assessment of street-railway property and franchises.

The city of Bridgeport, Conn., reports that all taxes are paid to the state, but that the city receives from the state \$750 for every drawbridge crossed by the street railway—an increase of \$250 over the amount reported in 1902. The city of Hartford, in the same state, receives from the company 2 per cent of the gross amount of fares collected within city limits. Los Angeles, Cal., reports street-railway property assessed as is other property. The franchise is assessed by deducting the assessed value of all tangible property from 50 per cent of the market value of the outstanding securities of the company, as a result of which assessed valuation of the tangible and intangible property is equal to 50 per cent of the market value of the outstanding stock and bonds. An assessment of 2 per cent of the gross income after five years is also made. The city of Riverside, in the same state, assesses street-railway property at 40 per cent of its actual value, making no assessment on the franchise, and receives 2 per cent of gross earnings after five years. Denver, Colo., assesses a municipal tax of 14.3 mills on a valuation of \$3,200,000. Pensacola, Fla., assesses 13 mills on real estate, track and physical equipment, and rolling stock.

Quincy, Ill., reports personal property assessed on the basis of one-fifth of the full value, and gives the amounts paid on real estate and buildings, track and physical property, and capital stock. There is also a car license of \$20 per car in daily use. Evansville, Ind., reports a graduated franchise tax as follows: First twelve and one-half years, 2 per cent gross earnings; second twelve and one-half years, 2½ per cent gross earnings; third twelve and one-half years, 3 per cent gross earnings; fourth twelve and one-half years, 4 per cent gross earnings. Des Moines, Iowa, reports a tax levied on assessment in bulk, 82 mills on one-fourth value. Dubuque reports a total tax assessment, also a proportion of the city electrician's salary. Marshalltown, in the same state, reports the entire property listed at \$150,000; taxable value \$37,500, at 22½ mills yearly, or about \$850, adjusted after appeal to court.

Leavenworth, Kans., reports "regular tax" on real estate, track, and rolling stock. There is no franchise tax or other requirement, except a certain amount of street paving. Covington, Ky., reports amounts paid on 75 per cent value for *a, b, c*. The franchise is assessed on the net earnings capitalized at 6 per cent, with \$8,000 added per year in lieu of street repairing. Frankfort, Ky., reports \$10,000 on tracks and \$14,000 on all property; while Lexington in the same state simply answers "Yes" to all inquiries, adding, under franchises, "by state board."

The cities of Massachusetts report an excise tax paid the state, and by it apportioned to the local governments, but the practice aside from this appears to differ locally. The city of Adrian, Mich., reports state, county, city, and school taxes assessed on real estate and buildings, track and physical property in the streets, and rolling stock, but no franchise assessment, other than a special tax levy for paving streets, sewers, etc., while Grand Rapids has assessed taxes on real estate, buildings, and franchise, and also \$5 per car license; pro rata for snow removal; and \$2,244.72 for "police at crossings."

Missouri taxes are assessed by a state board. St. Joseph reports also \$15 per car license. St. Louis reports a special tax of 1 mill per passenger other than the usual taxes. The ordinance levying this special tax has been held valid in the United States Supreme Court. A motion for rehearing is now pending.

The property and franchise in St. Paul, Minn., are reported to be assessed under state law. Keene, N. H., reports no taxes whatever. Newark, N. J., reports street-railway property assessed as is other property, with a state tax on franchises, an additional payment to the city of 5 per cent of the gross receipts, and a license fee of \$10 per car per year. At Binghams, N. Y., real estate, buildings, and franchise were assessed, but not personal property, owing to the indebtedness exceeding value. In Buffalo the amount paid as 3 per cent of gross receipts was deducted by

order of the court from the state franchise tax. Gloversville reported assessments "same as other property" on real estate and buildings, track, rolling stock, and franchises, with no other payments. In Rochester taxes were assessed on real estate, track, and physical property in streets, with \$5 per car on rolling stock, applied on general taxes, besides a payment of 1 per cent of gross receipts. All this appears to be additional to the state franchise tax. The mayor of Mansfield, Ohio, wrote: "The fact of the matter is that our city council has been too free in granting franchises for the occupancy of its streets by street railways. There are 3 street-car lines now operating in our city, and not one cent has been paid, or asked of them, for a franchise, which to my notion is not what it should be."

Allentown, Pa., reports no taxes assessed on real estate or buildings, track, physical property, or franchises, but a license of \$25 per car on rolling stock, \$1 per pole, and \$5 per mile of wire. A franchise privilege for certain new streets was given for the payment of \$15,000 toward the building of a bridge. Easton, Pa., exacts a license of \$25 per car and a pole and wire tax. In Erie the local company is taxed 10 cents per pole and \$25 per car. Pittsburg receives an annual license of \$100 on each car. Reading receives a real-estate tax of 10 mills and a license of \$10 per car per year. York makes no assessment of real estate or buildings, but receives 3 per cent of the gross earnings.

Columbia, S. C., reports that street-railway property is taxed as other property, and that in addition a license tax is required, but does not give amounts. Memphis, Tenn., in addition to its tax rate of \$1.91 per \$100, receives a privilege tax of \$20 per annum on each car. Nashville, in addition to assessment on real estate and buildings, track and physical property, and rolling stock, receives 3 per cent of the gross receipts. Houston, Tex., assesses on 60 per cent of the value of real estate, track and physical property in the streets, and rolling stock and franchises, and receives 1 per cent of gross earnings, while in Paris, in the same state, only a straight "ad valorem" tax is reported. In Virginia taxes appear to be fixed by the state corporation commission at \$1.40 on \$100 valuation. In addition to this, Danville receives a franchise tax of one-half of 1 per cent on the first \$40,000 gross receipts, and 1 per cent on all over \$40,000 gross. In Norfolk the Bay Shore Terminal Company, under an ordinance of July, 1901, agrees to pay the city, in addition to ordinary taxes and license, \$30,000 in annual installments of \$1,000 each. The license tax to the city of Norfolk is 6 per cent of the gross receipts. In addition thereto, an ordinance effective May 1, 1908, requires an additional \$1,500 license for running trolley cars on the streets of the city and beyond city limits within the state of Virginia. In Richmond the franchise tax is arranged on a sliding scale.

Spokane, Wash., has assessed 13 mills on a basis of 60 per cent of real estate, track and physical property in the streets, and rolling stock and franchises; also 2 mills per car mile made. Parkersburg, W. Va., reports assessment made by state board of public works, and a tax rate of 35 cents per \$100.

Janesville, Wis., reports that it receives 2½ per cent of the gross receipts, and Oshkosh 2 per cent of the gross receipts and \$1,000 per year on franchise for thirty-five years.

Street sprinkling.—In the special schedule of 1907, addressed to mayors, an inquiry was made as to the extent to which street-sprinkling obligations were imposed upon the traction companies. No such inquiry was made at the census of 1902, so that no basis of comparison is afforded; but the replies received at the present time indicate a growing practice of exacting this class of service from street-railway companies as part compensation for franchise privileges. Out of 85 replies to this question, 54, applying more particularly to franchises granted some years ago, reported no such requirement. The tendency in this direction is shown by reports from such cities as Buffalo, N. Y., where sprinkling on certain streets is required under the franchises granted recently, and Utica, N. Y., where such a provision was then being contemplated. Fourteen cities reported sprinkling to be a regular franchise requirement, and in Baltimore a penalty is imposed for neglect to live up to this obligation. The company at Oakland, Cal., does the street sprinkling voluntarily and at its own expense. Hoboken, N. J., Harrisburg, Pa., and Houston, Tex., also report some sprinkling done by local street-railway companies without franchise requirement. At Springfield, Mass., the street-railway company pays toward the expense of street sprinkling \$100 per mile of trackage, and under this requirement the amount received in 1907 was slightly in excess of \$2,208. Grand Rapids, Mich., on the other hand, furnishes water and pays the company for sprinkling. Covington, Ky., and Richmond and Norfolk, Va., furnish the water, while the street railways do the sprinkling.

Right to purchase.—Inquiry 6 of the special schedule for 1907 was: "Does the city reserve the right to purchase the property, or has it the right of succession on expiration of franchise?" No fewer than 64 cities answered this in the negative. A number of cities, including Denver and Des Moines, reported franchises in litigation at the time. At Houston, Tex., the new charter adopted in 1905 provides that in all franchises granted under it the city expressly reserves the right to purchase. The reservation of such rights is also reported by 9 other cities. Seattle, Wash., provides for purchase by the city at any time, with no value assigned to the franchise. Richmond, Va., reserves the right not only to purchase the old franchise, but

to grant a new franchise upon the expiration of the present one.

Voting on franchises.—Inquiry 7 of the special schedule for 1907 was to this effect: "Has there been any change in the power of officers or boards to grant franchises; in the proportion of the vote of the city council required; or in the matter of ratification by popular vote, and if so, what changes?" In reply to this the cities reported in 58 cases that no changes had been made. A great variety of practice is revealed in the responses. Denver states that by the charter of 1904 the franchise is to be submitted to a vote of the qualified tax-paying electors. Houston, Tex., states that the charter of 1905 puts a restraint on granting franchises, requiring their publication three times in three successive weeks and for thirty days after passage before going into effect; it also provides that 500 voters may cause the matter to be submitted to popular vote. It contains also clauses as to adequate compensation, and the power of the city to purchase at expiration, forfeiture to secure efficiency of service, and the right to inspect the books of the company. At Los Angeles the referendum clause in the charter of 1903 extends the existing franchise grant by competitive bid, the franchise being limited to twenty-one years. As to the initiative the charter provides that any proposed ordinance may be submitted to the council by a petition signed by registered electors of the city equal in number to a given percentage. With regard to the referendum it provides that no grant of any franchise shall be construed to be an urgency measure and that all franchises shall be subject to the referendum vote for which it provides. Petitions against the passing of an ordinance shall be valid if signed by electors equal in number to at least 7 per cent of the vote cast for all mayoralty candidates at the last general election. The city charter of 1905 of Memphis, Tenn., contains a referendum clause to the effect that, provided a petition by 500 freeholders demands a vote upon a franchise ordinance, it must be submitted to the citizens and approved by a majority of those voting. The charter of Grand Rapids, Mich., provides that, on petition of 12 per cent of the voters, the franchise must be submitted to a referendum. A renewal provision requires application to be made one year before the granting thereof.

The charter of Des Moines, Iowa, to which reference is often made in discussions of the subject, provides that all franchises for use of the streets or other city property must be submitted to a vote of the people; also, that if the people desire to vote upon any such measure not originating in the council, they may force submission of the question to a vote of the people by filing with the clerk a petition of 25 per cent of the voters, upon which he must then call the election.

At Newark, N. J., franchises have been granted in perpetuity, but future franchises are to be limited to

from twenty to forty years. Franchises for over twenty years can be granted only after an election on the subject, and no franchises whatever are to be granted for periods of over forty years. The right is reserved to amend the franchises with regard to particular subjects. New Orleans, La., reports that the city has the right to purchase and that extensions are granted on competitive bid, based on the highest percentage of gross earnings. No franchise is granted for more than fifty years, and an amendment of any grant is subject to mutual agreement. At Paterson, N. J., where it appears that no franchises have been granted since 1902, it is stated that a majority vote of the Board of Public Works carries the power to make a grant, subject to the approval of the mayor.

At Frankfort, Ky., the issue of a franchise requires a ratification by a two-thirds vote of the council. At Riverside, Cal., a majority of the board is required for granting a franchise, the board having been increased from 5 to 7 members. Since 1902 the old company has surrendered part of its system and has been granted new franchises, the principle upon which they were granted being that of competitive bids and the highest bidder. The new franchises have been limited to fifty years. Danville, Va., reports that the state requires, under the last constitution, that franchises shall be put up at public auction and sold to the highest bidder. Richmond, Va., reports to the same effect, and also that franchises are granted for ten years, and it reserves the right to grant new franchises to any person or corporation on expiration of the present one, the physical plant to be paid for by the successors.

Youngstown, Ohio, states that the legislature had provided for a referendum vote on the granting of franchises. Mobile, Ala., reports that all franchises have to be awarded to the highest bidder. Seattle, Wash., states that the charter amendment passed March 8, 1908, provides for a referendum vote when petitioned for by 8 per cent of the voters who voted for mayor at the last previous election.

Competitive bids.—Inquiry 9 of the special schedule for 1907 inquired as to whether franchises were granted on competitive bid, and if so, by what method. Some of the data under the previous heading applies to this inquiry. A specific answer of "No" is given by 46 cities. As already noted, several of the state constitutions, as in Virginia, required that franchises shall be advertised at public sale, and the same is true of Louisiana and New York. At Seattle, Wash., the bids are considered by the city council on the basis of the general terms proposed and a percentage of gross receipts to be paid to the city.

Duration of franchise.—Inquiry 10 of the special schedule for 1907 was: "Is the duration of new or renewed franchises limited? If so, how long? And what, if any, provision is made for renewal?" In reply to this, 13 cities answered "No," or "None,"

and 31 failed to answer. Pittsburg, Pa., reported that there had been a great public demand for limitation of term of franchises, but that as yet nothing had been done. Two franchises were reported as perpetual; 2 for ninety-nine years; 7 for fifty years with no provision for renewal; 1 for fifty years from the time of the original franchise; and 1 for fifty years, which may be renewed. One of the franchises was for forty years; 1 for thirty-five years, with no provision for renewal; 1 for thirty-two years; and 8 for thirty years, with no provision for renewal; 6 of the franchises were for twenty-five years without provision for renewal; and 1 at Baltimore, for twenty-five years, to be renewed on revaluation. In the case of 1 franchise, for twenty-five years, the company was to apply one year before the expiration of the present grant. In the case of 1 franchise for twenty-one years, provision is made for the arbitration of the rental value of some of the railway lines. In the case of 1 franchise for twenty years, application for renewal is to be made one year before the expiration of the present franchise. One of the franchises is for as brief a term as ten years. At Scranton, Pa., the renewed franchise is limited to a term of fifty years, and 2 franchises appear to be operative, but there is no provision for renewal. In the case of Seattle, Wash., all franchises are to expire December 31, 1934, with no renewals beyond that date. At Toledo, Ohio, it is reported that extensions have been limited to the time of life of the original franchise of the lines thus extended.

Rates of fare.—Inquiry 11 in the special schedule for 1907 was: "What, if any, restriction was placed on rates of fare?" To this 19 municipalities failed to make any reply, while 18 reported that no restriction has been made; 25 reported a 5-cent limit, and 8, a 5-cent limit with transfer requirements.

Houston, Tex., requires general transfers, and one-half fare for school children. Three municipalities report 6 tickets for 25 cents; and 2 have 5-cent fares, with 3 cents for school children. York, Pa., reports 5 cents for a single fare, 6 tickets for 25 cents, and 25 tickets for \$1. Youngstown, Ohio, reports 6 tickets for 25 cents, and 25 tickets for \$1, with universal transfers. Saginaw, Mich., reports 6 common tickets or 8 labor and school tickets for 25 cents. One city reports that an ordinance of 1903 requires one-half fare for school children during school hours. At Seattle Wash., the rate is 5 cents, with transfer privileges 25 tickets for \$1, without transfer privileges, and one-half rate for school children. At Detroit, Mich., industrial or labor tickets are issued between certain hours morning and evening, 8 tickets being sold for 25 cents, with universal transfers. If tickets are sold after 8 p. m., the rate is 6 for 25 cents. The general subject of fares is treated in another chapter.

Street paving.—In inquiry 12 of the special schedule for 1907 information was asked, as follows: "What are

the requirements in regard to the paving of streets traversed by street-railway tracks?" In reply, 24 municipalities reported that the companies within their jurisdiction are required to pave between the rails and 1 foot on each side; 17, between the rails and 1½ feet on each side; 16, between rails and 2 feet on each side; 4, between rails and 3 feet on each side. One company is required to pave between the outside rails of track or tracks. One municipality reports that it requires paving between rails and 8 inches on each side, and another between rails and 9 inches on each side.

At Binghamton, N. Y., the company is required to pay for one-fifth of the paving between rails, while at Gloversville, N. Y., the railway pays for paving a strip 9 feet in width. At Adrian, Mich., the company pays for the labor and the city furnishes the material for paving between rails. At Pittsburg, Pa., all the companies are required to pave and keep clean and in repair the space between tracks and 1 foot on each side, while in one or two instances the company has been required to keep the streets clean and in repair from curb to curb. At Covington, Ky., the city keeps the streets in repair, and the company pays \$8,000 per year toward the expenses in lieu of other contributions of the kind. Two cities require 7 feet of paving for single track and 14 feet for double track.

Amending franchises.—Inquiry 13 of the special schedule for 1907 was as follows: "Does the city reserve the right to amend the franchise grant during its term, either generally or as regards particular subjects?" In reply to this 52 answered "No;" 2, in Massachusetts, added "under state law." Fourteen municipalities either did not answer, or reported no new franchises granted. At Houston, Tex., this reservation is stated not to be in the franchise, but the new charter places restrictions and imposes conditions. Baltimore has no right to amend, but can regulate and superintend. Youngstown, Ohio, has no rights reserved, except as to service and schedules. Quincy, Ill., states that under its franchise it may regulate the manner and place of laying track and may by ordinance prohibit the laying of track where it may be deemed injurious to the public. Toledo, Ohio, reserves no right to amend franchises, but can regulate operation and standard of service. St. Louis, Mo., in like manner exacts an agreement to conform to all present and future ordinances. Adrian, Mich., has reserved the right to amend, and can by special ordinance, if necessary, make rules to protect the public. Chattanooga, Tenn., has reserved the right to amend the franchise, except as to rights that are vested in some franchise ordinances; in other ordinances no rights are reserved. At Fort Wayne, Ind., the company is required to observe all ordinances in effect or subsequently to be granted, while Fitchburg, Mass., reserves the right to amend or to revoke if conditions

are violated. The company is required to file a letter accepting conditions before the franchise becomes operative.

Special experiments in franchises.—Philadelphia is one of the important cities that has attempted to deal with the problem of franchises in its own way, and the ordinance approved by the mayor on July 1, 1907, and accepted by the Philadelphia Rapid Transit Company is an interesting example of joint operation and division of profits between the municipality and the corporation. The contract, or agreement, sets forth the fact that as the company has come into control and operation of one general system embracing practically all the street-railway companies in the city, such companies numbering upward of fifty since the year 1857, with all kinds of franchise conditions and restrictions, it proved desirable that a readjustment of relations should be reached. There was dispute and uncertainty in regard to terms under the various franchises and ordinances, and it was believed to be in the interest of the public as well as of the parties concerned to supersede all former contracts, and to define, with a view to better regulation, the future relations between the city and the company. The ordinance approaches the problem from three points of view. It states first that it is desirable that the city should have a voice in the management of the company and a supervision of its accounts and expenditures. The second point is that as the company required a large sum of money for the extension and perfection of its system the better to serve the public, it was essential that its position should be clearly defined so as to strengthen the value of its securities and properties and to render it easy for the company to enjoy proper credit in financing increased transit facilities. The third point is that it had been found desirable so to remodel the system of exacting revenues from the company as to secure the direct payment into the city treasury of a fixed sum in lieu of a license fee per car, and of a further sum to represent care and maintenance of streets and pavements containing street-railway tracks. In this respect it was desirable that provision should be made whereby the city would share in the company's earnings from the future growth of population, without making the city liable for any of the company's obligations, and with a view to the ultimate acquisition by the city of the company's real estate and property.

The ordinance, therefore, provides conditions under which the company can increase its stocks and bonds at any time upon receiving the approval of the city. All such increases in capitalization are to be paid for at par value in cash. In case the city council should determine that extensions are necessary and the company should fail to accept such plans, the city is at liberty to take up the work with other parties. The company is entitled to pay its stockholders a return

of 6 per cent upon the actual capital paid into the treasury, and in the case of any profit in excess of that, the city shares equally with the stockholders in all net earnings properly distributed as dividends. It is provided that the mayor ex officio and two citizens shall be chosen from time to time by the councils of the city to serve for four years or longer as members of the board of directors of the company, exercising full power as if they were directors for the stockholders, but without incurring any liability.

The ordinance provides for a sinking fund to be in the custody and control of a commission composed of the mayor of the city, the president of the company, and the president of the board of directors of the city trusts. The payments to this fund from July, 1912, are to be at the rate of \$10,000 monthly for a period of ten years, with an increase of \$5,000 at the end of each ten-year period until 1952, when the final increase will bring the rate up to \$30,000, which is to continue to the end of the fifty-year contract—1957. The city reserves the right to purchase the property outright at that time upon paying it an amount equal to the par value of its capital stock then outstanding, namely, the \$30,000,000 authorized at the start plus any additional stock issued in the meantime. The sinking fund is to be available in making the purchase, the commission on investment and reinvestment being confined in its operations to securities named by statute as proper investments for trusts, except that the stock of the company may be purchased at any time at a price not above its par value, while the bonds and underlying securities may be purchased on a 4 per cent income basis. The city reserves the right at any time after the sinking fund has reached the amount of \$5,000,000 to require by an ordinance of council that the same shall be turned over to the city treasury and become its absolute property.

In addition to this sinking fund the ordinance provides that in periods of ten years the company shall pay into the city treasury yearly sums ranging from \$500,000 to \$700,000, these payments to be in lieu of all obligation and liability for paving, etc., and license fees. In case, however, of any additional streets occupied by the company after 1907, provision is made that it shall add to the yearly sum to be paid an amount for certain street paving at the following rates: 7 cents per square yard for macadam pavement, 8 cents for asphalt, and 6 cents for pavement of other character; while should any streets be abandoned by the company the payment will be reduced in like manner, providing that the company is in no wise released from the obligation to replace or repair pavement removed or damaged by work which it may undertake in regard to its tracks or its conduits. Provision is made for the publicity of accounts, and for a full statement of receipts and expenses to the city comptroller. The ordinance provides also for the

development of the elevated system within three years from June, 1907.

It will be seen that in Philadelphia, as in the case of Chicago, to be noted hereafter, the contract or ordinance embodies obligations of partnership between the railway and the city; and it was expected that such partnership not only would serve as a protection to the city in its dealings with the corporation, but also would eliminate labor troubles. This expectation has not been borne out wholly by the facts, although it may perhaps be considered that labor troubles are less than would have been the case had the conditions existing previous to the passage of the ordinance continued.

Chicago is another city which has tried the "joint-ownership" plan, which in this case dates from the ordinance of 1907. At that time street railway affairs had drifted into a state of dire confusion, in which the companies had been seriously discredited and the properties had depreciated in value. Previous to the ratification of the ordinance proposed for submission to the voters of Chicago, a valuation board had estimated the value of the physical property of the Chicago City Railway Company and the Chicago Union Traction Company at \$52,000,000 with pavement and \$47,000,000 without pavement. The total value of the two properties was finally assumed to be \$50,000,000, and on this basis the ordinance provisions were founded. In accepting the ordinance of 1907 the two railway companies agreed to rehabilitate their properties thoroughly, raising the money for such purposes themselves. The work has already cost about \$30,000,000, and the total amount to be expended is estimated at \$40,000,000. According to the ordinance the city may, on six months' notice, purchase the property at the original valuation, plus the rehabilitation costs, certified by the board of supervising engineers; a renewal and depreciation fund of 8 per cent of the gross receipts of each month must, however, be set aside to guarantee the upkeep of the property to 85 per cent condition. From the gross receipts are deducted, besides the renewal and depreciation fund, the operating expenses and 5 per cent interest on the capital invested at the time of the signing of the ordinance. The balance that remains is divided, 55 per cent going to the city and 45 per cent to the companies as interest.

With the object of controlling the rehabilitation work and the books of the companies, so that a proper division of net earnings could be made, a board of supervising engineers, having its staff of auditors and its staff of engineers and inspectors, was created, and this board has laid down a system of accounting as well as a general system of control. It was stated that at the beginning of 1909 the board, which is responsible to the city, had had charge of the work distributed over 651 miles of city tracks, 213 miles of

which were being rehabilitated. A large amount of new work was also in hand.

The partnership ordinances resulted in payments to the city in 1907 and 1908 of a sum of about \$3,000,000, which was approximately 8 per cent of the gross receipts. Reference has been made above to the advantages expected to accrue from such joint ownership and operation, especially with regard to an improvement of the conditions between capital and labor. The disputes between the companies and their employees over hours and wages have, however, been renewed, and the companies have declared their inability to meet the demands made upon them. Under such circumstances the argument has been advanced by members of the city council that the city should and could meet the demands by paying the increase out of its proportion of the profit accruing from joint operation. It is argued on the other hand that the adoption of such a policy would have vicious results in many ways, besides sacrificing some of the material benefit derived by the city under the new ordinance.

Under the new policy in Chicago the principle of indeterminate franchise applies to a marked degree. The initial term of the franchise is twenty years, but the city holds the right to purchase at any time either during this period or after its expiration. At the end of twenty years the city may grant the franchise to another company, but should it do so, the new company is under obligation to purchase the property of the old one. Should the city exercise its right of purchase before the expiration of the franchise term for any other purpose than direct municipal ownership, it is required to pay a bonus of 20 per cent on the agreed price. It may transfer this right to a company, but such company must pay the 20 per cent bonus. If, however, a company is organized to operate the railway at a profit that shall not exceed 5 per cent, such a company may purchase the property of its predecessor without paying the 20 per cent bonus. At the end of the initial term of twenty years no bonus need be paid either by the city or by any new company.

The curious plan of operation adopted in the city of Cleveland, Ohio, has not been justified by results. A long period of controversy and difficulties in Cleveland led to the transfer of the street-railway properties in that city to the Municipal Traction Company. The property of the Cleveland Railway Company thus transferred or controlled was valued at the time of the lease at nearly \$24,000,000, while the holding corporation, the Municipal Traction Company, was incorporated with \$10,000 of authorized stock, said stock to be held by the directors for the benefit of the city of Cleveland. Under this plan, devised by Mr. Tom L. Johnson, mayor of the city and treasurer of the Municipal Traction Company, the Cleveland Electric Railway Company leased all of its property rights, privileges,

and franchises to the Municipal Traction Company for a period of fifty years, the lease to be renewable for like periods. The traction company was required to pay the railway company 6 per cent rental on about \$15,000,000 capital stock and 6 per cent on any additional stock that might be issued for financial betterments or extensions or for other proper objects.

It has generally been supposed that the city had specific control over the Municipal Traction Company, but this does not appear to be the fact, except so far as the directors of the Municipal Traction Company were officials of the city. As soon as the change of control was made, early in 1908, the new company put in operation a system which was supposed to be based upon a 3-cent-fare rate. As a matter of fact it established a 3-cent fare within certain limits, with a charge of 1 cent for a transfer; but as routes were changed and lines were abandoned, the charge per ride appears to have increased in a great many instances, and some extreme fares, as high as 12 and 13 cents, were reported. The changes appear to have worked to the disadvantage particularly of the long-distance passenger, and, as a matter of fact, the object of the low fare was to make riding attractive to the short-haul passenger. The long-distance passenger is said to have suffered, however, in various respects. For example, in regard to Euclid Beach, a summer resort on Lake Erie, outside the city limits of Cleveland, the old company charged one fare or sold 11 tickets for 50 cents. The new company did not operate any line directly to the beach from the downtown sections of the city, so that passengers had to pay up to 9 cents or more for a ride, depending upon the number of lines they were obliged to take or their unfamiliarity with the ticket scheme in force. If they did not ask for the proper transfer, another fare was exacted. The grant to the Cleveland Electric Railway Company required that in East Cleveland, a residence suburb, practically the same service should be given as was provided on Euclid avenue within the city, with the same rate of fare and the same transfer privileges. When the Municipal Traction Company took over the system this village was treated like all the other suburbs as to the fare charged. A rate of 3 cents was made to the city limits, and those who wished to ride to points within the village were required to secure a suburban-fare check, for which they paid 2 cents additional, thus equaling a straight 5-cent fare. A fare of 5 cents also was charged in the other direction, and for rides within the village. The changes caused troubles which resulted in an injunction suit decided in favor of the village, but after its settlement the company, while reducing its fare to 3 cents, put in operation a schedule provided for in an old ordinance requiring a car each way every ten minutes. The result was that the morning and evening traffic was seriously congested with heavy loads, small closed cars carrying at times from 100 to 140 persons.

Various conditions like this led to disputes with the public, followed by further labor troubles due to the treatment of employees, with the result that the Municipal Traction Company, after a short but eventful career, being unable to meet its obligations and falling deeper and deeper into debt with every month of operation, went into bankruptcy and passed into the hands of receivers. The citizens, at a later election, declared themselves against the plan put in force by Mayor Johnson, thus leaving the way open to further attempts at a settlement of the controversy.

New York City has adopted the principle of joint ownership or operation in its later relations with traction companies. The entire subway system now operated by the Interborough Rapid Transit Company was built by the city and is leased to the company for fifty years, with a privilege of renewal for twenty-five years. A later franchise, that of the Hudson and Manhattan Railroad Company for its tunnels under Sixth avenue and Eighth street, secures to the city the right to purchase the property at any time after twenty-five years, and also contains a provision for the readjustment of compensation or rental to the city at the end of each twenty-five-year rental period. The franchise, while of indeterminate character, does not provide for the transfer of the city rights to another company. In addition to the above, a number of individual street-railway companies in the city hold franchises which maintain the right of the city to amend or appeal them.

During the last few years the legislatures of various states, in dealing with public utilities, have taken steps to create public-service commissions which should have supervision of such utilities and of the general adjustment of relations between them and the public. The railroad commissions in various states exercise to varying extents supervision over other utilities, but in 3 states—New York, Wisconsin, and Vermont—the supervision and control exercised by the new public-service commissions appear to be most general and complete. The application of the public-service commission principle, however, is not yet by any means as thorough as is supposed even in these states. For example, in New York state the commission has not been given supervision of telegraph and telephone companies. In Massachusetts the extent of the supervision is the same as that in Wisconsin, but the jurisdiction exercised by one commission in New York and in Wisconsin is divided among three separate commissions in Massachusetts. The railroad commission in Pennsylvania has jurisdiction over navigation companies, pipe lines, railways, and telephone companies. The Kansas commission has supervision over electric railways. The Georgia commission is not known as a public-service commission, but seems to be such a body in reality, as it includes street railways, gas works, and electric-light and power plants in its scope of action.

One of the most important functions of such public-service commissions is found in their relation to the franchise, and to the adoption of the indeterminate form. Thus, for example, the public-utilities law of Wisconsin not only provided that all future franchises must be revocable at any time, but allowed any company that received originally a limited franchise to exchange it prior to July 1, 1908, for an indeterminate one. A number of utility companies in the state have availed themselves of this permission. The new constitution of Michigan, approved during 1908, adopted the same principle in another way, prohibiting local authorities from granting franchises, unless such grants were revocable, without ratification by popular vote. In Massachusetts the public-utility franchise is essentially of the indeterminate character. As defined by Commissioner Maltbie, of the public-service commission for the first district of New York:

The indeterminate franchise, or tenure during good behavior, as it is sometimes called, briefly defined, is a franchise which may be terminated by the proper authorities at any time upon the payment of a fair compensation for the value of property thus taken, exclusive of franchise. There are many other provisions of importance which are necessary to the practical operation of the plan; but any fundamental principle is the right of acquisition at any time at a reasonable cost. *This is the only way whereby a community can always and continuously control its own destinies and direct its own growth.* Governmental supervision of corporations is an effective weapon, but there are times when the desired results can be obtained only by the complete elimination of a given corporation or group of men, and then the right of purchase, to be followed by governmental operation or lease to another private corporation is the only adequate remedy.

The principle of granting indeterminate franchises has been adopted in Porto Rico and the Hawaiian Islands, and has been made applicable in the District of Columbia, where the street railways of Washington hold their franchises subject to alteration, amendment, or appeal at any time. In speaking of this subject the Chicago Street Railway Commission of 1900 makes the following remarks on the experience obtained at the national capital:

In Washington, franchise grants are conferred by act of Congress, and all grants are subject to alteration, amendment, or appeal at any time, at the will of Congress. Under the power thus reserved Congress orders such improvements in service as it may deem desirable, and whenever it deems them desirable, and the orders are at once executed without parley or litigation. The overhead trolley was never permitted in Washington. When the underground trolley was shown to be feasible, Congress passed an act reading in part as follows: "That the said Metropolitan Railroad Company be, and the same is hereby, authorized, empowered, and required to equip and operate the lines of its cars * * * with an underground electric system for the propulsion of such cars." Under this order Washington was the first city in the country to secure the underground trolley. Under the reserved power to alter, amend, or appeal grants at will Congress has required different companies to make arrangements for issuing transfers from the line of one company to those of another, and it has also required different companies to use certain tracks in common where the public interests would be served by such an arrangement.

As regards the work of public-service commissions it is stated by Commissioner Maltbie, in the report to which reference has already been made, that continuous control and supervision by state or city authorities should be provided for either by franchise or by general statute. This control should include the approval of plans of construction and equipment and of subsequent changes, power to adopt and enforce general or special rules and regulations as to construction, operation, and service, the regulation of contracts, rates, and transfers, and the control of capitalization, accounting methods, consolidation, etc., and in every way endeavoring to secure the best service to the public at the lowest rates consistent with a fair profit on the investment. This, Mr. Maltbie states, presupposes the existence or creation of such an authority as a public-service commission, with an organization adequate for the exercise of its power. As to the partnership plan, or sharing of profits, he says that while there may be instances where it seems desirable to make such provision by ordinance, it is better to lower rates

than to tax the user of a service to defray the expenses of the government. Discussing the results obtained with the Wisconsin Public Utility Commission, Dr. B. H. Meyer, president of that body, in an address before the American Civic Association and the National Municipal League, states that the Wisconsin legislation has taken the utilities out of politics; that the public-utilities law tended to eliminate feuds between citizens and the management of the public and private plants; that it raised the standard of morality through the eradication of the evil of discrimination and the protection of a reasonable rate; that the law is working a revolution in business methods by enforcing the adoption of uniform accounting and systematic, scientific rates; and that all the effects of the law taken collectively show its tendency to place investments in public-utility enterprises on a more favorable foundation by removing them largely, if not entirely, from the field of speculation, and putting them in the class of conservative, certain, and stable investments.

CHAPTER VI.

FOREIGN TRAMWAYS AND ELECTRIC RAILWAYS.

Herewith are presented some general data with regard to the development of street railways and electric-railway systems in foreign countries during the five-year census period. In the report for 1902 the exact figures were obtainable for the United Kingdom, Germany, and France, though for various reasons they did not all coincide as to date. The figures given in the present report are fullest for the United Kingdom, Germany, and France. In regard to the last-named country, the statistics are the latest obtainable, being those for 1905, issued by the ministry of public works while this report was in preparation. Those for Germany are for the year 1907, while those for the United Kingdom include some covering 1908 in part, but not enough to vitiate any comparison that may be sought. Outside these three countries the data in any fullness are obtainable with difficulty, as few governmental authorities in Europe appear to collect them carefully; and there is no authority in this country that can furnish them. In the report of 1902 no data were given beyond those of the United Kingdom and the Continent of Europe; but the present report includes information in regard to other parts of the world, particularly the Dominion of Canada and the Republic of Mexico. The census period has witnessed considerable development in South America, Asia, and Africa, of which notice is taken, and in regard to which it may be remarked that American enterprise and capital have been enlisted in many of the undertakings.

The statistics presented in this chapter were expressed in units of measure in use in the country to which the statistics related. For the purpose of comparison with the statistics relating to the United States, the several units have been reduced to the standard units of the United States.

Nowhere else can a growth of interurban railways be found at all comparable with the remarkable development in the United States during the period 1902 to 1907. The chief reason for this is that the place filled by the trolley system in this country is taken, in the leading European countries, by their "light railways," fostered for a long period by special laws and regulations. Broadly speaking, none of these railways are included in the street or electric railway statistics issued as such by the authorities of the United Kingdom, France, or Germany, and are not included here in bulk, although referred to as they were in the report of 1902. Hence care should be exercised in making

any comparisons based on the statistics of street railways proper in Europe and on those in this country, which, on account of the interurban lines, embrace so large a mileage and so extensive a business. These European light railways are usually operated under steam conditions highly unfavorable to good financial results, and a change to electric motive power might naturally be expected; but no foreign experts look for an early revolution of that kind. In a paper read by Mr. O. Petri before the International Congress of Street Railways and Light Railways at Munich in 1908, the extent of the development of light-railway traction in Belgium, France, and Germany was given in the following statement, which shows that Belgium has gone farthest per unit of area as well as per capita in the erection of street railways, while the financial results in that country are least satisfactory:

	Network in miles.	MILES OF LIGHT RAILWAYS AND STREET RAILWAYS.		Mean dividend.
		Per acre.	Per 10,000 inhabitants.	
Belgium.....	1,822	2.5	2.5	1.80
France.....	3,799	0.3	1.0	3.16
Germany.....	3,115	0.4	0.8	2.48

In Germany only 4 cities with more than 35,000 inhabitants have no street railway, but the general financial results are unsatisfactory, the mean dividend of street railways being below 2.5 per cent. The electric street railways and light railways might be divided into two groups, those that have their own generating stations and those that buy energy from central stations. The cost of energy in proportion to the cost of operation and per kilowatt hour were given in the following statement, the figures of course representing mean values:

	Energy cost in per cent of cost of operation.	Cost per kilowatt hour (cents).
Light railways with their own electrical stations.....	19.6	1.66
Light railways which buy energy from central stations.....	27.7	2.85

The average cost of energy for electric street railways was 2.49 cents per kilowatt hour. The ratio of the energy cost to the first cost is comparatively high,

3.34 per cent. This ratio is important for estimating the economy of operation.

It is not to be understood, however, that Europe has been without electric-railway development outside the cities. On the contrary, considerable work has been done since 1902 in changing or equipping lines of considerable length. Note is made of several such roads under the respective heads in this chapter. At first work was carried out with direct current. A brief period followed, more experimental than practical, of work with 3-phase alternating current. Six roads using this type of current were built, including the famous Zossen road in Germany, 14 miles in length, on which speeds in excess of 100 miles an hour were at-

tained with a trolley line carrying 11,000 volts. Another and a permanent example is the Valtellina road in Italy, 67 miles in length, on which speeds of over 40 miles an hour have been attained. These roads employ three live contact conductors to supply current to their motor cars or locomotives. It was not until the single-phase current with only one working conductor was seriously taken up that any great progress was made, but since its general acceptance in Europe for long-distance work, the utilization of electricity in heavy long-distance traction work has been most significant. Subjoined is a table, compiled early in 1908, showing the growth effected in about three years.

TABLE 173.—SINGLE-PHASE RAILWAYS IN EUROPE: 1908.

NAME OF LINE.	Length in miles.	Frequency.	Line voltage.	Number of motor cars, with horsepower on each.	Number of locomotives, with horsepower on each.	Date of opening.
Bergamo-Valle Brembana.....	19.0	25	6,000	.....	6-300	December, 1907
Blankenese-Ohlsdorf.....	41.5	25	6,000	0-250	.....	January, 1907.
Blankenese-Ohlsdorf.....	.....	25	6,000	51-345	.....	January, 1907.
Borrlinge.....	11.0	40	600	20-80	.....	April, 1905.
Compagnie Generale Parisienne de Tramways.....	1.0	.....	300	2-50	.....	Experimental.
Murran-Oberammergau.....	15.0	16	5,000	4-100	.....	January, 1905.
Spindlersfeld.....	20.0	25	6,000	2-200	.....	August, 1903.
Prussian State Railway.....	1.5	25	6,000	.....	.....	Experimental.
Rome-Civita-Castellana.....	34.0	25	6,000	15-80	.....	March, 1907.
Stuhlfeld.....	11.75	42	2,500	4-100	.....	August, 1904.
Stuhlfeld.....	.....	.....	6,000	.....	2-200	.....
Stuhlfeld.....	.....	.....	5,000	.....	.....	.....
Swedish State Railways.....	12.0	25	20,000	.....	1-330	Experimental.
Swedish State Railways.....	.....	.....	6,000	.....	.....	.....
Swedish State Railways.....	.....	.....	20,000	.....	1-330	.....
Vienna-Baden.....	17.0	15	(A.C.) 10,000 (D.C.) 500	12-100	.....	January, 1907.
Vienna-Baden.....	.....	.....	.....	.....	.....	.....
Locarno-Bignasco.....	17.0	20	5,500	4-100	.....	September, 1907.
Seebach-Wettingen.....	12.0	15	15,000	.....	2-100 1-225	December, 1907.
Midland Railway.....	16.6	25	6,000	3-350	.....	April, 1908.
Brighton Line.....	17.2	25	6,000	.....	.....	.....
Parma Provincial.....	26.5	25	4,000	17-120	.....	.....
Parma Provincial.....	.....	.....	.....	1-100	.....	.....
Rotterdam-Hague.....	45.0	25	10,000	20-350	.....	Not yet open for traffic.
St. Polten-Marazell.....	60.5	25	6,000	.....	23-350	.....
Terguier-Anizy.....	20.0	25	3,300	.....	.....	.....

Europe had 19 single-phase lines, aggregating 415.5 miles, while in the United States at the same time there were 28 such lines, aggregating 956.3 miles. Further reference will be found below to this work, which seems destined to have an important influence on European railroad conditions.

Without anticipating the specific separate data as to the individual countries dealt with, it is fitting to cite here, as illustrative of the best European conditions, a table presented in 1908 by President Mordey, before the Institution of Electrical Engineers of England, in a paper on electrical development. This table summarizes the detail data, quoted in two tables

given later, as to results with electric tramways in England and Germany. In regard to these figures, Mr. Mordey remarks: "The most striking difference between the countries is in the car miles per inhabitant—the German figures being nearly double the British for both groups. This difference is, of course, due to the use of small cars in Germany." He explains that the average capacity in Germany is 33 passengers, including standing space, while in England it is about 50. The cost per passenger is much higher in Germany, but the total cost per car mile is lower, due in part, it is said, to lower wages. The table follows:

TABLE 174.—COMPARISON OF ELECTRIC-TRAMWAY STATISTICS FOR ENGLAND AND GERMANY: 1908.

TOWNS.	PER INHABITANT.					PER PASSENGER.		PER CAR MILE.	
	Capital.	Journeys.	Revenue.	Yards of track.	Car miles.	Revenue (cents).	Cost (cents).	Revenue (cents).	Cost (cents).
Six large British.....	\$11.68	160	\$1.55	0.29	18.3	2.21	1.28	21.49	12.38
Six large German.....	13.77	157	3.07	0.36	27.8	2.33	1.50	12.77	8.51
Six medium British.....	9.98	92	1.90	0.31	8.9	2.15	1.40	22.30	14.30
Six medium German.....	8.71	76	1.54	0.30	15.2	2.33	1.60	11.90	8.31

In a general way it may be said that the sociological and economic aspects of street-railway operation in Europe are widely different from those in America, though conditions are very much alike from the engineering standpoint. In England largely, and to some extent on the Continent, the street railways are owned and operated by the various municipalities, while in the United States such a condition is almost unknown. In Europe a zone fare prevails, here the flat rate of 5 cents. In Europe the transfer is not in use, while here its use is practically universal. In Europe the tramways are all subject to a central national authority; here the effective control hardly extends beyond the community in which the line operates, except in states where railway or public-service commissions have been created. Other notable points of difference could be mentioned. But in respect to engineering practice, the methods in vogue are surprisingly similar, and a constant interchange of principles and apparatus goes on, as to car building, motor equipment, controllers, brakes, line material, track construction, and current-generating apparatus.

Trackless trolleys.—No trackless trolleys are in operation in the United States, but several have been tried here as well as in Europe, and while the present report has been in preparation a special committee of the town council of Leeds, England, has made a study of and a report on the subject. Such systems can hardly be regarded as railways, but partake more of the nature of stagecoach lines, although the overhead wires may be regarded as in the nature of conducting track.

Three trackless-trolley routes are now in operation in Austria, 6 or 7 in Italy, and 1 or 2 in Germany; these being representative of three systems. The vehicles correspond in general appearance to the single-deck motor omnibus, plus the means of collecting current. A double-trolley method is necessary in order to complete the circuit from the wire through the motors and back to the generating plant. On one of the lines in Vienna two pairs of cables are used, so that passing cars do not have to stop and exchange connections as on other lines and as was done by some of the earlier electric-railway trolley systems in the United States. The Austrian vehicles, which, empty, weigh $2\frac{1}{2}$ tons apiece, each carry 12 passengers seated, with standing room for 12 more. The electric motors, each of 20 horsepower, form the hubs of the rear wheels, and current is led to them by a flexible cable attached to a pair of wheels which run on top of the wire, a similar pair making the return circuit: a weighted pendulum slung from a frame presses the wheels down upon the wires. The cost of the coach chassis is \$2,750, and the cost of overhead construction is \$8,500 per mile.

In the Italian system each coach, which carries 30 passengers, has a direct-current motor of 10 to 12 horsepower. To maintain the circuit a framework supports two pairs of wheels, but in this case the wheels

are pressed by a pole against the underside of the wires, as in regular trolley work. The route examined by the committee is $4\frac{1}{2}$ miles long, and the fare charged is 8 cents. The cost of overhead construction, wooden poles being employed, is placed at \$3,756 per mile.

The system seen in operation in Germany had current gathered by sliding shoes pressed against the wire by short poles. The empty vehicle weighs 6,280 pounds and carries 15 passengers seated. Only the front wheels have rubber tires, so that there is considerable vibration and noise, and as the single motor drives on the front axles the steering is rather cumbrous. It is stated that all the systems examined operate smoothly, with few hitches, and that owing to the comparative lightness of the vehicles the surface of the road suffers less than in the case of cars carrying gasoline or other engines. The committee reports itself as much impressed with the practicability of all the systems for transportation feeder purposes in sparsely settled districts, and as a means of avoiding the heavy expense required for the installation of ordinary street railways.

CANADA.

Statistics with respect to electric railways were not collected by the Department of Railways and Canals until 1901, so that the history of events up to that time is not of record. Subjoined are data from Mr. J. L. Payne, Comptroller of Railway Statistics of the Dominion:¹

YEAR.	Miles.	YEAR.	Miles.
1901.....	512	1905.....	793
1902.....	558	1906.....	813
1903.....	750	1907.....	815
1904.....	767		

Whether or not the relatively slow growth in mileage of the past three years indicates that Canada is approaching the saturation point can only be a matter of conjecture. The older provinces are well served at present. Ontario has 29 lines, with 402 miles of track; Quebec has 8, representing 198 miles; the Maritime Provinces account for 7, with 71 miles; and in the west there are 3 systems aggregating 104 miles.

Up to June 30 last the investment of capital stood as follows:

YEAR.	Amount.	YEAR.	Amount.
1901.....	\$36,070,018	1905.....	\$61,023,321
1902.....	41,563,064	1906.....	63,567,970
1903.....	47,086,453	1907.....	75,195,476
1904.....	50,309,188		

These figures represent a capitalization of \$76,320 per mile in 1901 and of \$92,264 in 1907. The explanation of this increase is probably to be found in the

¹ Street Railway Journal, February 1, 1908.

larger earnings and larger capacity of power production. The railways required betterments and got them by increasing liabilities. Of the \$75,195,476 outstanding on June 30 last, \$39,251,746 was in common stock, \$4,200,000 in preference stock, \$28,459,537 in bonds, and "other sources" made up the remaining \$708,437. A floating debt of \$7,567,025 also was returned. In a few instances state aid was given to electric railways, the Dominion government having contributed \$118,400, provincial governments \$306,945, and municipalities \$173,000. In one instance British Columbia gave a grant of land.

The financial results are fairly satisfactory, as the following statement shows:

YEAR.	Gross earnings.	Operating expenses.	Expenses to earnings (per cent).
1901.....	\$3,708,283	\$3,435,163	59.55
1902.....	6,496,438	2,812,855	58.63
1903.....	7,233,677	4,472,858	61.83
1904.....	8,433,609	5,326,517	63.01
1905.....	9,337,126	5,918,194	63.25
1906.....	10,996,872	6,673,038	60.87
1907.....	12,635,905	7,737,252	61.23

That the earnings should have increased 119 per cent while the mileage was growing 59 per cent, may be taken as proof of the response which came from the public when more adequate transportation facilities were provided. The increase in capitalization within the same period was 92 per cent. The proportion or relationship of earnings to working expenses shows the flourishing condition of electric-railway interests in Canada. The gross earnings for the year were made up as follows: Passenger traffic, \$12,101,922; freight traffic, \$344,368; mails and express, \$41,952; other sources, \$238,664. The division of operating expenses was: Maintenance of line, buildings, etc., \$765,685; cost of power, \$1,412,359; working and repairs, \$1,060,783; general operating charges, \$4,498,425.

The history of traffic, mileage, and equipment reveals the same relative measure of growth. The following summary gives the essential facts:

YEAR.	Passengers carried.	Tons of freight.	Car mileage.	Number of cars.
1901.....	120,934,656	267,926	31,750,754	2,194
1902.....	137,981,482	296,182	35,933,841	2,374
1903.....	155,602,912	371,286	38,028,529	2,533
1904.....	181,680,998	400,161	42,056,124	2,601
1905.....	203,467,317	510,350	45,959,101	2,790
1906.....	237,635,074	506,024	50,618,836	2,950
1907.....	273,909,604	479,739	53,391,227	3,157

While the number of cars in service was increased by 44 per cent, the number of passengers grew to the extent of 127 per cent. Details are not given as to the well-known increase in the size and carrying capacity of the cars. The effect of this larger traffic was to raise the number of passengers carried per car from 55,121 in 1901 to 86,791 in 1907—a betterment in that respect of 57 per cent. At the same time the car mileage was increased 68 per cent. The effect of all

this was to increase the cost of power 181 per cent, but the account as a whole must be viewed with satisfaction from the standpoint of the companies. In 1907 the average cost of running an electric car 1 mile was 14.5 cents, and the gross earnings, reckoned on the same basis, were 23.7 cents.

During the year 1907 special inquiries were made with respect to equipment. The number of cars in service was found to be 3,157, of which 75.5 per cent was of domestic manufacture. During the year 207 had been added, of which 45, or 21.7 per cent, came from the United States. This would seem to indicate that in earlier years the importations made up a larger proportion of total equipment, which was no doubt the case. At one time nearly all the cars for use in Canada were brought in from the United States, and to this day the importation of parts goes on to a considerable extent; but with the steady growth of the electric-railway business it was only natural that shops for meeting home needs should be erected in Canada.

With respect to employees, it was shown that the total number reached 9,131, and was divided as follows: Staff officers, 190; clerks, 483; conductors, 2,394; motormen, 2,352; and others, 3,712. Conductors and motormen were paid all the way from a minimum of \$30 per month to a maximum of 27½ cents per hour. The difference was governed by geographical and other conditions, the lowest rate prevailing in the extreme east and the highest in the west. The average remuneration in Ontario was about \$55 per month. The total wage bill was officially reported as being \$5,291,585, and revealed a significant difference as between the operations of electric and steam railways. In Canada last year the cost of labor of all classes contributed 56.59 per cent to the working expenses of steam railways and 68 per cent to those of electric railways. The figures for the year as to accidents show that in all 71 persons were killed and 1,736 injured, which exceeded by 1 the fatalities recorded by steam railways. Of the persons killed, 27 were passengers, 7 were employees, and 37 were classed as "others." The fatal accidents to passengers were in the proportion of 1 to every 10,148,126 persons carried as compared with 40,311,552 in 1901. That 1 employee in every 664 was killed, as against 1 in every 125 on steam railways, shows the relative measure of hazard, but with regard to injuries the danger in each case appears to be about the same. The chief increase in casualties applies to those who are neither passengers nor employees, and clearly demonstrates that the risk to this class is in almost definite ratio to the number of cars run and the population directly served thereby.

The harnessing of Niagara has brought into definite shape, on a somewhat extensive scale, a number of new electric-railway projects in Ontario, and in other directions there are signs of considerable expansion. The

established systems are certain to grow, in view of the centralization of population and the extensive immigration. This latter influence must produce large results in the west.

Various propositions have been made to electrify main lines of railroad, chiefly in the western section of the Dominion, where water power is abundant and the availability of Niagara for the Grand Trunk and the Canadian Pacific has been discussed and analyzed. During the preparation of the present report the electrification of the Grand Trunk Pacific or National Transcontinental Railway has been under serious consideration by the Dominion government, the New Brunswick parliament, and the railway authorities. The distance between the St. Lawrence River and Moncton is about 460 miles, and for a considerable part of this distance the road passes through country yielding a heavy traffic in lumber and farm products, while at Grand Falls on the St. Johns River, 170 miles from the St. Lawrence and 160 miles from Moncton, is water power sufficient to furnish energy for the operation of the whole road. At this point the river has a natural fall of about 130 feet, and electrical experts estimate that by inexpensive storage and conservation at least 100,000 horsepower can be obtained continuously, whereas the requirements of the road are placed at no more than 40,000 horsepower.

MEXICO.

The development of street railways in the Republic of Mexico has been slow but has already attained considerable magnitude. Some statistics from 73 different roads or systems are available for 1907 for capital invested, capitalization, dividends, the number of passengers carried, etc., but they are not in any way complete. The large majority of the roads reporting were operated by horse or mule power, though these roads did not rank first as to cost or equipment, but at the time of the report several of them were undergoing transformation to electricity or had made contracts for that purpose. It would appear that 63 roads employed animal power wholly or in part, with 572 miles of track and 1,248 cars of all kinds. Steam was in use on 7 roads with 177 miles of track and 127 cars. Electricity had been adopted and put in use by 5 roads with 225 miles of track and 593 cars. These give totals of 974 miles of track and 1,968 cars, but there is probably a small amount of duplication, owing to the fact that two or three systems may in some cases use the same track and cars in common. The tendency in 1907 toward the adoption of electricity was marked, although there was no expansion of the steam system. Mexico is rich in water power, and wherever available it has been utilized both for electric traction and for lighting purposes.

The street-railway system of the City of Mexico, under American control and management, is com-

parable in extent with roads in the United States, but embodies many features peculiar to Mexico. The lines reach out from the city into the federal district and to the foothills of the surrounding mountains. The system embraces about 133 miles of track operated by electricity and 31 miles by animal traction; but the latter portion is in process of being electrified. Slightly over 500 cars of all kinds were in use in 1907. There is an absence of any appreciable evening traffic because the people do not go out much at night, but on the other hand a considerable traffic is due to the midday siesta when business is virtually stopped and people go home. Another striking feature is the admixture of funeral and freight cars with the regular passenger cars. Owing to the fare system the running of cars in trains is the general practice. The absence of bell ringing is noticeable; fares are not "rung up" on registers, and as, by the aid of mirrors, the motor-man can see the rear platform, he can start up without a bell signal from the conductor. The freight service is fairly extensive, and involves a complicated tariff for goods and baggage. The strict regulation of speed necessitates the use of controller handles for high and low speeds, and their change at various fixed stations.

Among the notable features of the system is the use of first and second class cars and two rates of fare. All of the lines in the City of Mexico have a uniform first-class fare of 6 cents (Mexican coin) for the shortest ride. A zone system is in use, by which the fare is proportioned to the distance, and the passenger must state his destination when paying his fare. The maximum ride in the city is about 5 miles. On the interurban lines the first-class fare averages 3 cents (Mexican) per mile, and the second-class fare usually 40 per cent less. Commutation tickets are issued permitting three or four round trips per day. On one line where the one-way first-class fare is 10 cents (Mexican) such a ticket costs \$5.75 for the month, whereas the full fare for four round trips per day for one month would be \$24. As already noted, fare registers are not in use, but trip tickets are issued which are viséed by inspectors, who tear them up or cancel them. All commutation tickets are punched.

All the rank and file of the tramway force in the City of Mexico are native Mexicans, who are given free uniforms and badges, and who also receive free baths and free barber service. Motormen receive from 17 to 24 cents (Mexican) in silver, per hour, the higher rate being paid to instructors. Conductors of all grades receive 15 cents an hour (Mexican). Men from the cars who have good records for a year or more are eligible for promotion to the positions of inspector, dispatcher, and chief inspector.

Perhaps the most striking feature of the system in the City of Mexico, to a visitor, is its funeral-car service, which furnishes nearly 4 per cent of the total revenue. Owing to the remoteness of the ceme-

ies. the company handles all city funerals, providing the trolley hearse and cars for mourners, as a result of a special arrangement with the undertakers. In general, the lines of least traffic are used and there is little interference with ordinary travel. The cost of a funeral train ranges from \$3.75 to \$140, and a wide range of styles is provided. The bodies of paupers are carried free.

The service in the city is freely used by the people not only for personal transportation but for the conveyance of freight, household effects, and even domestic animals, charges for which are based on classification and distance. The population served, including that in the suburbs, is about 800,000. It is stated that the population of 650,000 using the system of St. Louis, Mo., pays annually for passenger traffic about four times as much as is received by the Mexico Tramway Company for every kind of traffic. The freight and package express business over city and suburban lines is large. Freight is shipped in open gondola cars having a capacity of from 5 to 22 tons. The company is not allowed to haul more than two freight trailers behind a motor car through the city streets. Closed motor express cars are used for handling packages, milk in cans, and similar commodities. In second-class motor cars a compartment is provided in which small packages, bags and crates of produce, and even pigs or goats, are carried; but all these must be accompanied by a passenger, who is responsible for loading and unloading them. A large number of chartered cars are maintained; also a special car for the exclusive use of the presidential family, and a spur track runs into the grounds of Chapultepec Castle. Most of the motor cars and trail cars are equipped with air brakes and geared hand brakes, and "long-nose" fenders of an English type are used. It is interesting to note that in sharp contrast with American practice, smoking is permitted on all cars, inside and out.

Illustrative of modern power development in Mexico, the company at the capital supplements its steam-power-plant energy with current from distant water power. Coal is generally expensive in the republic, and hence the rapid development of hydro-electric generating systems. Current is carried into the city from Necaxa, 100 miles away, at a potential of 60,000 volts, by means of an overhead-transmission line carried to the main substation on lofty steel towers.

CUBA.

Cuba has several street or electric railway systems. That of the Havana Electric Railway Company operating in and around the city has \$7,500,000 of common stock issued and \$5,000,000 of 6 per cent cumulative preferred, as well as \$7,823,181 of consolidated mortgage 5 per cent bonds. The system is controlled in the United States. Most of the officers and directors are American citizens. The road has 50.4 miles

of electric track, 240 passenger cars, 72 freight cars, 11 cars of other kinds, and 7 electric locomotives; and it operates 167 stagecoaches. The total income in 1907 was \$1,889,665, and the operating expenses were \$964,733. The net income was \$366,075. No dividends were paid on the common stock, but in 1908 it received 2 per cent. During 1907 the road ran 7,527,469 car miles, and in 1908 it ran 7,948,973 car miles. The latest reports of passengers carried were those of 1905, when the total of revenue passengers and transfers was 33,658,952.

The Habana Central Railroad Company, having offices in New York and Havana, bought certain rights from the Insular Railway Company to build 120 miles of road connecting Havana, Regla, Guanajay, Güines, and Guanabacoa. It has 36 miles of electric line completed, with 38 passenger and baggage cars, 10 electric locomotives, 5 steam locomotives, and 300 freight cars. It has \$8,162,500 of stock issued, and \$8,500,000 of first-mortgage 5 per cent gold bonds. The road obtains current from 5,000 horsepower of steam turbine generators.

The Camagüey Company of Puerto Principe is a corporation of Canadian origin. It has 4 miles of electric trolley, with 8 passenger and freight cars, and 1,425 horsepower of generator plant. It has \$700,000 of capital stock issued and \$600,000 of first-mortgage 5 per cent bonds.

The Santiago Electric Lighting and Traction Company of Santiago de Cuba has 11 miles of electric-trolley line, 18 cars, and 1,500 kilowatt capacity of power plant. Its capital stock issued is \$1,500,000 and \$1,000,000 of first-mortgage bonds are outstanding.

REPUBLIC OF HAITI.

The street-railway development of the Republic of Haiti is of no importance. The Port au Prince tramways, with 40 miles of track and 93 cars of all kinds, are operated by 11 steam locomotives. The Compagnie Haitienne of Port-de-Paix has 12 miles of cable line, but this is apparently employed for carrying freight only.

BRITISH WEST INDIES.

The street-railway enterprises of the British West Indies are not numerous and owe their existence chiefly to Canadian capital. The mountainous conditions of most of the islands, and the manner in which the population is scattered over the rural regions, militate against the creation of extensive systems. The West India Electric Company, Limited, operates the Kingston and St. Andrew electric-car system of Jamaica, originally a horse-car line. It has 26 miles of track and 36 cars, and in 1907 carried 4,711,708 passengers. The railway earnings that year were \$173,831. The company generates current for light, power, and traction at a water-power plant some distance out of the city of Kingston.

The Trinidad Electric Company, Limited, of Port of Spain, Trinidad, has 14 miles of electric trolley line, with 24 cars and 2,200 horsepower of generating plant. The Bridgetown Tramway Company, Limited, of Barbados, operates with mules, of which it has 112. These haul 20 cars over 9 miles of track.

In this West Indian group may be included the system of the Demerara Electric Company of Georgetown, British Guiana, which maintains a lighting and traction system. The traction system includes 10½ miles of single track with overhead-trolley wires. The rolling stock consists of 16 open-type cars, each seating 45 passengers. The car mileage made per annum is given as 420,000 and the number of passengers carried was 1,830,000—year of report not specified, but probably 1907.

SOUTH AMERICA.

A number of electric street-railway systems are now in operation in the various countries of South America, but in few instances is definite or authentic information regarding them obtainable through official channels. The most extensive systems are those in Brazil, Chile, Peru, the Argentine Republic, and Uruguay, although a few roads are to be found in some of the smaller republics.

Bolivia.—La Paz, the capital and chief commercial center of Bolivia, with an area of 10½ square miles and a population of 60,000, has recently been furnished with street-railway service through the instrumentality of a New York firm. This electric railway connects on the outskirts of the city with the Guaqui-La Paz Railway, which is electrified for 5½ miles, and which, like the urban system, operates cars of American construction. The interurban road terminates at Guaqui on Lake Titicaca, and is 56 miles in length, being in reality over a large part of its length a regular steam railroad. The street-railway system consists of a stem with two branches coming together and forming a loop. From the Guaqui-La Paz Railway station the main stem of the line continues to the principal plaza of La Paz and thence two lines run to the lower part of the city, the distance by either route being about 2½ miles. The city system has been furnished with 8 cars of similar dimensions, but of three distinct classes—first, and second, and combination. Considerable difficulty was experienced in transporting the material for this road from the United States to La Paz, which is the highest capital in the world, its altitude above sea level being 12,470 feet. The streets are narrow, irregular, and generally steep, and the grade of the electric railway ranges in several places from 8 to 12 per cent. Before the material for the line could be delivered at the point of use it had to be built, then disassembled and packed in small sections, and handled five times before it could be delivered to the Guaqui Railroad terminal.

Venezuela.—The city of Caracas now has a complete electric-railway system. Prior to the year 1905 two small horse-railway companies were in operation there, one being the Bolivar and the other the Caracas tramway. In that year the two companies were consolidated, and during 1907 the system was electrified, capital being furnished from England, and part of the apparatus from the United States. The line has a total length of 10 miles of track, with routes converging upon the Plaza Bolivar, the political and social center of the city. The maximum grade of the line is 4 per cent. Overhead side-bracket construction has been employed, with aerial feeder cables. The power system of the company is interesting from the fact that part of the electrical energy used is supplied from 2 hydro-electric generating plants about 10 miles from the capital. In the evenings, however, when part of the current is needed for lighting, electrical energy is produced in the power house itself by means of oil engines of 240 horsepower each, belted to 3 motor generators, oil being used on account of the high price of coal. The current thus obtained is manipulated so as to be available for the direct-current motors on the cars.

Uruguay.—It is reported from Uruguay that 3 street railway systems are operated in the city of Montevideo. Two of these, the Sociedad Comercial and the Sociedad Transatlantica, are electric. The other system, the Tranvia y Ferro-Carril del Norte is operated by horse in the city limits and by steam beyond. This line appears to be owned partly by the government and partly by private persons.

Peru.—The only electric railways in Peru are those in and around Lima. The Ferro-Carril Electrico de Lima y Callao connects Lima with the port of Callao. The Tranvia Electrico de Lima y Chorrillos is an interurban line running from Lima through Miraflores and Barranco to Chorrillos, a distance of about 8 miles. The Ferro-Carril Urbano de Lima operates in the city, with about 25 miles of track. All these three companies are parts of the system of the Empresas Electricas Asociadas, and all their machinery, cars, etc., are of American manufacture. Another electric road which was started in opposition to the one above mentioned runs from Lima through Miraflores and Barranco to Chorrillos, and is called the Tranvia Nacional de Chorrillos. The apparatus installed for it is partly German and partly American. The Lima-Callao line is 6 miles in length; the other lines from Lima to Chorrillos and from Lima to Magdalena are respectively 9 and 4 miles long. The fare all over these combined lines which serve the city of Lima is 5 centavos, which is equivalent to 2½ cents in money of the United States. On the Lima-Callao line the rate of fare is equivalent to 10 cents for first-class passengers and 5 cents for second-class passengers. The Peruvian system is modern in design and construction, and a number of American-made cars

of the latest type have been acquired since 1905, including recently some semiconvertibles, such as are in widespread use in the United States. The cars in use on the road have first and second class compartments, each seating 20 passengers. The *Empresas Electricas Asociadas* not only operates 3 electric railways, but furnishes light and power, having 2 hydro-electric plants equipped with American machinery, which deliver electrical energy to 3 substations.

Argentina.—According to the report of the directors of the Buenos Aires traffic office, submitted to the Inspector-General, mechanical traction is gradually displacing traction by animals, not only in the car service but with all other vehicles of transportation. With a population of 1,000,000, Buenos Aires has 25,842 vehicles of various kinds in circulation in the streets, but the development of street-railway systems appears likely to have some effect on these, owing to the extent of the system and its cheapness. Seven electric-railway companies operate in Buenos Aires, having a total of 378 miles of track and 1,658 cars in use. These companies reported carrying 255,071,846 passengers during 1908, with receipts amounting to \$25,229,266, national currency. The cars made 4,672,545 trips, but the mileage is not given. The largest system is the *Anglo-Argentino*, with a total trackage of 189 miles. Other companies operating are the *Compañía de Tranvías La Capital*, *Compañía de Tranvías Metropolitano*, *Compañía de Tranvías Gran Nacional*, *Compañía de Tranvías Lacroze*, *Compañía de Tranvías Eléctricos del Sur*, and *Compañía de Tranvías Ciudad de Buenos Aires*. The street-railway developments in Buenos Aires have been and still are the subject of a great deal of financial manipulation and consequent rapid change in management, although the general result has been a very marked gain in economy and efficiency of operation and in excellence of service. The city is laid out in squares, and nearly every thoroughfare of importance is traversed by a trolley line, which avoids congestion in the commercial section of the city. Most lines are single track, and use certain streets for going in one direction and others for returning. The first section of the electric lines was laid in 1897, when the congestion of traffic became so great that the municipality found it necessary to construct a network of diagonal avenues, and to widen the streets. A subway system is under consideration and will doubtless soon be undertaken.

One of the most interesting and extensive of the tramway systems is that of the *Buenos Aires Lacroze Tramway Company*, the only native Argentine tramway in the city, and the only line running a high-speed suburban service on the American plan. It was founded in 1884 by one of the pioneers of tramway traction in Buenos Aires, Mr. Frederico Lacroze. The first line which he built was sold afterwards to the *Anglo-Argentine group*, and it forms the nucleus of the

very large system now operated by that company. Mr. Lacroze continued his service out into the country with a private right of way, and cars equipped on the American plan for a maximum speed of 50 miles an hour. One of the interesting points in connection with the original franchise was that it was granted to the concessionaire with the provision that horse traction must be used exclusively. The reason for this was that the government wished to encourage horse breeding as one of the great national industries of the country. The original tramway was continued by degrees under this old concession for a distance of upward of one hundred miles into the country, and it is believed to have been the longest tramway system run by horse traction in the world. Moreover, the "rural tramway," as it was called, could boast of having been the only horse tramway to run a sleeping car over its lines. This car was designed and built in the United States. After a time, when the industries of the country became more diversified, the authorities recognized that if an efficient and speedy service were to be given, horses must be abandoned, and they therefore granted permission to use steam locomotives. The development of the *Tramway Rural* at the hands of Frederico Lacroze was carried on on a larger scale by his sons, who in 1905 made a contract with a well-known firm of American engineers for the reconstruction and electrification of the old city lines, under the name of the *Buenos Aires Lacroze Tramways*. The lines were laid in the upper part of the city where the streets were wide enough for double tracks, and the construction was durable and attractive, center steel poles being used between the tracks for carrying the overhead wires. Semiconvertible cars are largely in use, being well adapted to the climate, which is temperate and equable, with an average temperature during the winter months of 50° and 73° F. during the summer, while the average daily range during the year is about 11°. According to the statement of one of the authorities on the subject, each inhabitant of Buenos Aires used the street-car systems on an average of 168 times during 1905, while the inhabitants of Berlin, Paris, and London during the same period used their street railways 153, 122, and 53 times, respectively. The number of city and suburban passengers in Buenos Aires for 1907 is given at 200,000,000, which compared with the figures previously quoted for 1908, indicates a gain of about 55,000,000 during the latter year.

Chile.—Four electric street-railway systems are reported for the Republic of Chile, namely, those in Valparaiso, Santiago, Concepción, and the interurban road from Santiago to San Bernardo. This last road uses American machinery, as does the Concepción Electric Company, while both the Santiago and the Valparaiso tramways are operated by German companies, and their material is all of German manufacture.

Colombia.—During 1907 arrangements were made for the equipment with American material of the first electric street-car railway in the Republic of Colombia. This road has been constructed at Bogota, the capital, and replaces earlier mule-car lines. Colombia is situated in the interior of the country and at a considerable altitude, so that the equipment is transported from the point of landing 15 miles by steam railroad, then 400 miles by water route, and 100 miles on muleback, followed by a second water trip and another muleback journey. Owing to these conditions the apparatus has to be shipped in small packages. The road is about 6 miles in length and some 8 or 9 cars have been placed in service, with the intention of enlarging the system at a later date. Each car is equipped with two 25-horsepower motors, and current is generated at a power plant belonging to the city.

Brazil.—The Republic of Brazil has enjoyed electric street-railway service for some time past, and some of the systems, such as that at Rio de Janeiro, are of an extensive character. The entire street-railway figures for the country are not obtainable, but all indicate considerable activity and prosperity. During 1906-7 the tramway lines in Bahia, Brazil, were electrified, all the apparatus being purchased in the United States. This included an American boiler and condenser, and a steam turbo-electric generator of the latest design, as well as direct-current generators driven by standard motor-generator sets, etc. The equipment contract included 40 miles of trolley-line material, track, bonds, etc., and motor equipment for 36 cars, each of which carries a 2-motor 40-horsepower equipment. The San Paulo Tramway Light and Power Company is also a large system, inclusive of tramways and lighting. The latest report available for this company—that for the year 1905—shows that the gross earnings during the period increased \$489,067, or 34 per cent, with a net increase of 31 per cent over the preceding year. The company paid 8 per cent during the year on its stock, and had a surplus of \$363,032 after the application to the contingent fund of \$50,000. The operating expenses were reported as 35.1 per cent of the gross earnings.

The city of Para, with a population of about 125,000, has an extensive and complete electric-railway system, reaching all parts of the city and extending into the suburbs, with 35 miles of track and 100 cars. The tramways were formerly operated by mules, but in 1905 a concession was obtained for a period of ninety-nine years for electrifying the tramways, and the old systems were absorbed by the Para Electric Railway and Light Company (Limited), of London. The old city of Para (or Belem, as it is called officially) was founded in 1615, and therefore is one of the oldest cities in the Western Hemisphere, and the ancient part of the city, now the business section, has very narrow streets, while the new part, or residential dis-

trict, has many wide and beautiful thoroughfares, most of which are lined with trees. The patronage of the street-railway system is liberal, and requires a high class of equipment. The road had, in 1908, 67 cars of four different types, 24 of which were first-class, and 20 second-class vestibule cars, while 14 were first-class "double-service" cars, and 9 combined baggage and second-class vestibule open cars. In addition to these, 2 parlor cars, lavishly upholstered and equipped, were maintained and reserved for the use of the governor of the state and the mayor of the city. A large part of the equipment was purchased in the United States. The electrical energy for the system is supplied from a modern steam plant driving direct-current generators. Overhead construction, chiefly of the span type, is used on the line, with tubular steel poles. The rolling stock has been increased, according to figures given by the International Bureau of American Republics.

The largest and most complete electric-railway system in Brazil is that of the Rio de Janeiro Tramway Light and Power Company, Limited, a corporation which was formed under the laws of Canada and financed with international capital, and the president of which is a prominent engineer of New York City. The unification concession for the tramway system of the company was granted in 1907, but the work was not carried through until the following year. At the end of 1907 the company had, as reported in its annual statement for 1908, 34.70 miles of electric lines, 89.04 miles of mule lines, 68 electric cars, 358 mule cars, and 5,082 mules. The intention is ultimately to electrify the entire system, and work in that direction is rapidly progressing. The total number of passengers carried in 1907 was 90,305,439, and the gross income from tramway operation \$3,504,743, which was an increase of more than \$120,000 over that for the preceding year. The net income from tramways was \$1,353,273, the proportion of net to gross being 38.61 per cent. The total number of miles run in 1907 was 8,558,030 over mule lines and 4,348,234 over electric lines. In connection with this system it is interesting to note that Rio de Janeiro is the first of the world's great capital cities, except the City of Mexico, to be adequately supplied with transmitted water power, and a large proportion of this long-distance electrical energy is utilized for the tramway system. The company owns a very considerable hydro-electric development at Rio das Lages, and the voltage of transmission is high, being 88,000 volts, while the distance is 51 miles. The lines are carried in duplicate, each line consisting of steel towers varying in height from 45 to 60 feet. The current on arrival at the city limits is stepped down and manipulated for its various uses, and the company has a private right of way over almost the entire line. This hydro-electric service supplements the extensive steam-power systems upon which

the company has hitherto depended for its supply of electrical energy.

Deputy Consul-General Joseph J. Slechta, of Rio de Janeiro, sends the following information of the plans for furnishing rapid suburban transit in the Brazilian capital:

The greater part of the suburban districts of the city of Rio de Janeiro is reached by the trains of the Central Railway, the government line. Special suburban trains are run over the tracks of the main trunk line which connects this city with Sao Paulo. The increase in this suburban traffic has been so great as to call for some solution of the problems of providing adequate facilities for the large population which depends for transportation upon these trains. The number of passengers carried in the suburban trains increased from 12,600,000 in 1901 to 19,250,000 in 1906, an increase of about 52 per cent. It has been proposed that the suburban lines be electrified, and plans are now being made to that end. It is probable that this service will be entirely separated from the main line of the Central Railway, a loop being run through the outlying suburbs so that the service will be that of a circular system. The mileage will probably be about 20 miles, some seventy minutes being required for the circuit. The present estimate places the cost of the work at about \$3,500,000, but it is probable that it can not be done for less than \$5,000,000. Three years is to be the time limit for the completion of the work. The plan specifies that trains are to run on a schedule providing a three-minute service, or 20 trains per hour, accommodating 40,000,000 passengers per year.

UNITED KINGDOM.

Very complete information as to the street-railway system of Great Britain and Ireland for 1907 is obtainable from the statistical publication, Gareke's Manual of Electrical Undertakings, as well as from the publications of the Board of Trade and from other public and private authorities. The first four tables presented herewith are based on data from the Manual. Table 175 gives a general idea of the total investment in such enterprises, but would seem to include some roads that are not embraced in the French or German statistics, as being more properly placed in the separate class of light railways. It is hardly possible, however, to separate such roads, and the table may be taken as accurate, subject to that reservation.

TABLE 175.—Street railways of the United Kingdom: 1907-8.

	Total expenditure on capital account.	LENGTH OPEN FOR TRAVEL (MILES). ¹			Number of undertakings.
		Total.	Double.	Single.	
Total, United Kingdom...	\$331,894,901	2,464	1,522	941	305
Tramways and light railways belonging to local authorities...	218,604,723	1,619	1,113	505	177
Tramways and light railways belonging to other than local authorities...	113,290,178	844	409	435	128

¹ The items of trackage do not add to the totals indicated. Information not available to harmonize the figures.

² These figures include cost of buildings and equipment in respect of certain local authorities' lines worked in conjunction with other lines.

Table 176 is interesting as giving a general view of results at three distinct periods through which the transportation systems have passed, namely, those

of horse traction, steam power, and electricity. The steam period includes also cable roads, while the electric period includes roads where other kinds of power as well as steam are in use to drive the generators.

TABLE 176.—Miscellaneous statistics of street railways of the United Kingdom: 1879 to 1908.

	Electric period, 1907-8.	Steam period, 1898.	Horse period, 1879.
Length of route mileage open.....	2,464.22	1,064.19	321.27
Total number of passengers carried.....	2,625,532,895	868,485,542	150,881,515
Capital expenditure per mile of single track open:			
Lines and works.....	\$93,007	\$37,513	\$36,153
All items.....	\$83,246	\$30,947	\$48,066
Percentage of net receipts to total capital outlay.....	6.81	6.38	3.97
Percentage of net receipts to net capital outlay (eliminating amounts expended on construction or purchase of old lines and works now superseded).....	7.41	(¹)	(¹)
Percentage of working expenditure to gross receipts.....	62.64	76.93	81.61
Passengers carried per mile of route open.....	1,065,462	806,703	469,641
Passengers carried per car mile.....	9.29	9.48	7.77
Average fare per passenger, cents.....	2.21	2.49	3.73
Amount paid in relief of rates out of profits of undertakings worked by local authorities.....	\$1,555,703	(¹)	(¹)

¹ Not available.

Table 176 shows that as between the steam and electric periods the percentage of operating expenses to gross receipts has fallen from 76.93 to 62.64. On the other hand the passengers per car mile have declined from 9.48 to 9.29, indicative of a larger service; and the average fare per passenger has fallen from 2.49 cents to 2.21 cents, due probably to the zone-fare system, with low fares for the shorter distances.

Table 177 shows the combined results from the operations of all the roads, whether under the control of municipalities or owned by companies. It will be seen that the tramways of the United Kingdom represented a capital expenditure of \$331,894,901, with a gross revenue of \$60,537,435. The number of passengers carried was 2,625,532,895, and the car miles run were 282,588,392. The rolling stock included 64 locomotives and 12,049 cars of all kinds, of which 10,908 were reported as electric-motor cars. There were 5,288 horses employed.

There is ceaseless controversy as to the alleged success or failure of the municipal street railways of the United Kingdom, but no question can exist as to the extent of such undertakings. Although slightly inferior in number, compared with roads owned by private capital, they predominate in every other respect. They represented in 1907-8 (the periods of comparison between the two groups do not exactly coincide) no less than \$218,604,723 of the total capital expenditure of \$331,894,901, and of the revenue of \$60,537,435 from all sources they received about \$44,000,000. Of the 2,625,532,895 passengers, they carried 1,989,573,290; of the energy used, they employed about three-fourths; and of the 12,049 cars, they had 8,300. It is also noteworthy that of the total of 282,588,392 car miles run, their cars ran 200,622,219 miles.

TABLE 177.—*Miscellaneous statistics of street railways of the United Kingdom: 1907-8.*

[Municipalities and companies, combined table.]

Capital expenditure.....	\$331,894,901
Revenue from passenger traffic.....	\$58,124,050
Revenue from all sources.....	\$60,537,635
Total working expenses.....	\$37,922,994
Permanent way.....	\$2,322,440
Electrical equipment.....	\$714,860
Engines or horses.....	\$113,774
Rolling stock.....	\$3,745,246
Buildings, tools, etc.....	\$432,919
Power.....	\$9,165,006
Traffic expenses.....	\$15,712,357
Rent.....	\$406,117
Rates and taxes.....	\$2,021,169
Insurance.....	\$1,089,030
Miscellaneous.....	\$2,199,064
Net receipts.....	\$22,614,441
Interest or dividend.....	\$9,198,026
Repayment of debt or sinking fund.....	\$4,534,235
Other charges.....	\$1,835,332
Reserve or depreciation.....	\$4,454,901
Relief of rates.....	\$1,555,703
Balance, etc.....	\$1,007,910
Passengers carried.....	2,625,532,995
Car miles run.....	282,388,392
Total average revenue per route mile.....	\$24,546
Energy used, kilowatt hours.....	431,990,119
Cars, electric, number.....	10,908
Cars, nonelectric, number.....	1,141
Locomotive engines, number.....	64
Horses, number.....	5,288

It is to be observed that, with about half the population of the United States, the United Kingdom reported figures equal to about one-fourth of the companies or systems, one-seventh of the earnings, one-fourth of the passengers carried, one-seventh of the cars, one-tenth of the energy used, and one-tenth of the capital account. The figures compare thus:

Comparison of street and electric railway statistics of the United States and the United Kingdom.

	United States, 1907.	United Kingdom, 1907-8.
Number of companies or systems.....	1,236	305
Capital account.....	\$3,774,772,696	\$331,894,901
Earnings or income.....	\$429,744,254	\$60,537,635
Passengers carried.....	9,533,060,766	2,625,532,995
Cars.....	83,641	12,049
Miles of line (route mileage).....	25,547	2,404
Car miles run.....	1,617,731,343	282,388,392
Kilowatt-hours used.....	4,250,130,100	431,990,119

It appears that in the period 1898 to 1908 about 1,400 miles of electric track were constructed in the United Kingdom, while during the same period 23,000 miles were added to the electric trackage of the United States. In the report of the National Civic Federation of its inquiry into municipal ownership it is stated that in 1905-6, 46 British cities of 25,000 to 100,000 population, and two cities of 100,000 or more, were without street railways; also that 295 localities of from 8,000 to 25,000 population were in the same condition. The United States Census report of 1902 on street railways showed only 21 municipalities of 25,000 and under to be without such facilities, and none in the higher groups. Various reasons are urged in explanation of the contrast, including national characteristics and the restraint of municipal ownership. In an address before the Tramway and Light Railways Association of Great Britain, on his study of the tramways of the world, made in 1907, Sir Clifton Robinson, managing director of the London United Tramways, said that among the

things handicapping British street railways were these: The cars are not permitted to travel fast enough, the average speed being less than 10 miles per hour. The double-deck tramway car in general use causes much delay, particularly at stopping points. The adoption of this type of car is consequent upon the regulation enforced by the authorities that no car shall be licensed to carry any passenger for whom a seat is not provided. Traffic could be handled more successfully on special occasions were the present licensing restrictions regarding passengers removed or amended. He added that British lines suffered also under many other minor disabilities. For instance, the licensing powers outside the metropolitan area (London) are vested in every little local authority through whose district the lines are laid. At present, municipal bodies working tramways under perpetual tenure have an enviably open field before them, and they are working it zealously, but without the initiative, concentration, and originality that characterize private enterprise. The civic phase of street-railway construction and administration has been singularly barren of contributions to invention or to the understanding and conquest of scientific or traffic problems.

During recent years the relation between coinage and street-railway fares has attracted some attention in Great Britain, owing to the proposal to adopt a new British coin having the value of 1.2 pennies, or 2.43 cents. At the present time there is no coin in England between 1 penny (2.03 cents) and 3 pence (6.08 cents), so that in order to conform to this the street-railway systems are divided broadly into penny zones, although there are special subdivisions of a half-penny (1.01 cents), 1½ pence (3.04 cents), and 2½ pence (5.07 cents) representing the respective zones.

Street-railway enterprises as a general thing have not flourished very well in Great Britain, and it is thought that they would be materially assisted if the average fare could be increased by 20 per cent by adding 0.02 pence to each penny fare. The penny in England is divided, however, into quarters, called farthings, and it is suggested that a new coin embodying farthing values would be more in harmony with those now in use, and that fares of a penny plus a farthing would increase the rate 25 per cent instead of 20 per cent under the zone system, and would not complicate a decimal coinage with that already in existence.

The idea of a new coin is perhaps more favored by the private than by the municipal street railways, although it is considered that the latter would benefit by the addition. Some of the street-railway systems have devised other means of increasing their revenues, of which perhaps the most striking is that of the Edinburgh Tramway, which has levied a charge for parcels and personal baggage carried by passengers, and also makes a charge for dogs. The amount to be paid is based upon the conductor's estimate of the weight

and bulk of the parcel, and the tariff is exacted whether the package is left on the platform or taken inside. A golfer has been charged for carrying his bag of clubs, and another passenger for the transportation of a traveling rug, but these instances are said to be due to misunderstanding on the part of the conductors. The company, however, charges postmen for their heavy mail pouches. Parcels of less than 28 pounds are exempt, as well as workmen's tools, under which latter exemption a clergyman sought recently to avoid payment on a parcel of theological books on the ground that they were the tools of his trade.

Up to the present time very little has been done in England with regard to the electrification of main lines of railroad, although the subject has been vigorously discussed. It is evident that the density of traffic and the shortness of the lines are conditions extremely favorable to electrical methods. One of the most successful of the few long lines in England is the Lancashire and Yorkshire, operating between Liverpool and Southport, with a total of 82 miles of single track, 80 motor cars, and 52 other cars, such as trailers, etc. This line is operated over its own right of way, by direct current from a large generating plant with substations. In the heart of each city are numerous stations for local trade, and a well-developed express business is conducted on separate tracks. During 1907 this road reported 5,012,013 electric-car miles. The results of operation of the system are said to be entirely satisfactory, especially when viewed from the standpoint of the management, the general manager of the road, Mr. Aspinall, having always maintained that the object of electrification is not so much to decrease the expenses of a railway company as to increase its earning power. Nothing but a greater acceleration and more frequent service could have enabled it to hold its own, and it is only electric traction that provides such acceleration. In an article on the electrical equipment of main lines of railroads in Europe,¹ Mr. Philip Dawson, C. E., remarks that frequent and rapid service would in most cases provide an efficient remedy, as is clearly shown by the satisfactory results obtained in the case of the Lancashire and Yorkshire Railway, just noted, and in that of the Northeastern Railway Company, which has electrified a section of its main lines in the vicinity of Newcastle and Tynemouth, where the competition of electric trolleys was strong and disastrous. This electrified system is operated with 3-phase alternating current at a pressure of 6,000 volts, and has a route mileage of 35 miles, including some four-track, double-track, and single-track, part of which appears to be for freight traffic only. The system maintains 58 motor cars with two 150-horsepower motors each, 44 trailers, and 2 electric locomotives. In 1907 an electric-car mileage of 3,839,264 miles was made. A comparison of half-

year periods between 1903 under steam and 1905 under electricity shows an increase in passengers carried from 2,844,000 to 3,548,000, a gain of 24.8 per cent, while in the same periods the gross earnings increased 17.1 per cent and the running costs only 11.7 per cent.

A short section of the London, Tilbury and South End Railway, with 6 miles of track, and a short section of the London and Southwestern Railroad have also been electrified, while the electrification of a suburban line of the London, Brighton and South Coast Railway has been in progress during the preparation of this report, with a single-phase alternating-current system, and it is expected to be in operation shortly.

HOLLAND.

The statistics of the Railroad Commission of Holland for the year ending December 31, 1905, deal with steam and street railways combined. The report shows that the total length of all railways in operation at that time was 1,237 miles. Of these, 26, with a length of 117.10 miles, were operated by horses; 35, with a length of 583.47 miles, were operated by steam; and 7, with a length of 402.8 miles, used steam and horses. One road, 48.5 miles, used a combined service of steam, horses, and electricity, and one, with a length of 27.87 miles, was operated by electricity and horses. Three, with a total trackage of 233.22 miles, were operated entirely by electricity. The companies or roads had a total of 1,118.49 miles of single track and 118.57 miles of double track. They used 411 locomotives, 1,010 horses, 1,926 passenger cars, and 1,642 freight cars. The total number of passengers carried was 90,745,793.

SWEDEN.

A report on the subject of the adoption of electric traction on the main lines of government railroad in Sweden was submitted during 1908 to the Swedish Parliament by Chief Engineer Dahlander, as a result of experiments made on a 3.73-mile stretch of track between Tomeboda and Värtan, and a 4.35-mile stretch between Stockholm and Järfva. The electric trains have now been temporarily replaced by steam-driven trains, which will continue the service until electrical energy can be obtained from a water-power station. During the experiments energy was supplied from a steam-driven power station. The electrical equipment of the track between Järfva and Värtan is, however, kept ready for use for demonstration purposes.

It is interesting to note that the advantages of the single-phase system over the 3-phase system, with respect to the overhead equipment in particular, were considered sufficient to warrant experiments being carried out with the single-phase system only. Under the conditions prevailing in Sweden, the cost of the overhead equipment must play an important part in deciding selection of the system, and it was estimated

¹ Electric Railway Journal, June 6, 1908.

that a 10,000-volt or 15,000-volt single-phase system would cost less than a 3,000-volt or 5,000-volt 3-phase system.

The rolling stock used for the experiments consisted of two trailers, two 300-horsepower locomotives and two 230-horsepower motor cars. Each locomotive or motor car ran more than 6,214 miles in the course of the experiments. No trouble was experienced with the commutators of the single-phase motors, and the electrical equipment was found satisfactory. It was conclusively proved that forced ventilation is very effective in increasing the capacity of the motors and keeping the temperature low, and a forced lubrication type of motors effected a considerable saving in oil. The cable method of leading in the high-tension current was found unsatisfactory at high pressures, and a bare wire passing through the open window or through a porcelain collar was resorted to. The energy consumption varied between 22.4 watt-hours per ton mile for a 265-ton train and a speed of 19.51 miles per hour to 31.9 watt-hours per ton mile for a 144.5-ton train and a speed of 29.95 miles per hour. These values may be taken as relating to a level track, as the short upgrades on the experimental track were compensated for by the corresponding short downgrades. The momentum gained on the latter served in most cases to overcome the extra resistance due to the former. As, on account of the nature of the track, the speed of the trains was limited to 43.50 miles per hour, no experiments at high speeds could be carried out.

Experiments were also made to determine the relative costs of electric and steam car heating. The power consumption for electrically heating a passenger car was found to be from 0.2 to 0.3 kilowatt per degree centigrade difference between inner and outer temperatures. In order to compete with steam heating, the price of electrical energy would have to be not over 1 cent per kilowatt-hour. With regard to the most favorable frequency of the single-phase current, the opinion was expressed in the report that a frequency lower than 25 cycles would have more disadvantages than advantages, even considering the possible better working of the motors. The frequency for which the plant was designed, 25 cycles, would seem to be the best.

Various methods of suspending the contact wire were tried, apparently the most satisfactory method being the fixing of the contact wire on a swinging bracket without either suspension or cross wires. It was found necessary, even with catenary suspension, to put the contact wire under a certain amount of tension to insure satisfactory current collection, and owing to the wide variations in temperature, the method adopted on the Hamburg-Altona line of putting the wire under a constant tension by means of a hanging weight was used. For section insulation the arrangement of parallel or crossed wires with air insulation

was found to be more satisfactory than porcelain section insulators, partly on account of the weight of the latter, but chiefly due to the reduction of the insulating power of the porcelain by smoke and dirt. The brown porcelain insulators were provided with iron pins which were cemented into them. It was noticed that insulators in contact with the live wires kept themselves free from soot, which was thickly deposited on other insulators.

Extensive investigations were made with the use of rails as return conductors. These showed that a large portion of the current was carried by the earth, this amounting, in some cases when the earth was moist, to as much as 80 per cent. A difference of phase existed between earth and rail currents, the measured power factor for the rails being in a few cases as low as 0.3. An attempt to increase the earth current, by means of artificially grounding the rails, failed completely. A number of tests showed that at 25 cycles, with a rail weighing 99.8 pounds per yard, the rail resistance without copper bonding amounted to from 0.2 to 0.3 ohm per mile of line, the resistance varying with the moisture of the ground.

In conclusion, the report states that the experiments have shown that the single-phase system can be considered to be the simplest, cheapest, and most satisfactory system for main-line working and that there is little chance of a better system being devised in the near future. The immediate commencement of the electrical equipment of the main lines and the utilization of the abundant waterfalls for supplying the energy are recommended.

GERMANY.

The latest statistics obtainable for Germany are those of March 31, 1908,¹ and are therefore practically those for the year 1907. At that time the number of street railways in existence or in course of construction was 237, with 2,357 aggregate miles of track. Of these lines, 234, with 2,345 miles of track, were in operation, divided territorially as follows: Prussia, 162 roads,² 1,645 miles; other German states, 72 roads, 700 miles. An increase of 4 roads for the year was shown, 2 in Prussia and 2 elsewhere.

The motive power of these systems was classified as follows: Prussia—steam locomotives, 13 roads, or 7.9 per cent; electric motors, 120 roads, 78.2 per cent; horses, 15 roads, 9.1 per cent; steam and electricity, 1 road, six-tenths of 1 per cent; horses and electricity, 3 roads, 1.8 per cent; cable, 4 roads, 2.4 per cent. Other German states—electric motors, 60 roads, 85.3 per cent; steam and electricity, 1 road, 1.4 per cent; cable, 4 roads, 5.6 per cent; 7 horse roads,

¹ Zeit für Kleinbahnen, April, 1909.

² This number does not agree with the itemized account, according to motive power, in the following paragraph. Information not available to harmonize the figures.

7.7 per cent. These figures indicate the extent to which electricity has already replaced the other kinds of power, and the process is still going on. While on March 31, 1901, horses were employed in Prussia on 24 roads with 102 miles of track, they are now in use on only 15 roads with 42.2 miles, the average length showing these roads to be very small. Electricity, moreover, is now used on all tramways and elevated systems with dense traffic.

The rolling stock in service in Germany in 1907 comprised 81 steam locomotives, 57 electric locomotives, 9,906 electric-motor cars, 17,263 passenger cars (including motor cars and trailers), 69 package or express cars, 937 freight cars, 17 mail cars, and 1,124 special cars of all kinds, many of which were doubtless employed for the work of the roads rather than in hauling passengers or freight. The largest amount of rolling stock was reported by the Grosser Berliner Strassenbahn, with 2,544 cars capable of carrying 85,573 passengers, or slightly over 33 passengers per car, which indicates the prevalent use of a car much smaller than is generally used to-day in the leading American cities. Hamburg was second, with 1,269 cars having a capacity of 36,693 passengers, or 25 per car. As the rule against standing up is generally enforced, these figures would not indicate any considerable provision for dense traffic.

The majority of the roads in Germany are still owned by private companies, but there is a tendency toward municipal or government ownership. In Prussia 95 roads were owned by companies and 61 by municipalities or other public authorities. In other German states 42 roads were owned by companies and 24 by public authorities, and no increase in the other class. Eight German roads were owned by private concerns and 3 by the Kingdom of Saxony.¹

The capital invested in all the German street railways was about \$215,302,048, or about \$91,346 per mile. The exact amount of dividends paid does not appear. The expenses include ordinary allowance for depreciation, but not amortization, of the capital account. Of all the German roads considered, 22 did not pay expenses. As to the interest earned on the capital invested in 145 Prussian street railways, it was nothing on 18 roads, up to 1 per cent on 6, 2 per cent on 14, 3 per cent on 9, 4 per cent on 14, 5 per cent on 23, from 5 to 10 per cent on 54, and above 10 per cent on 7 roads.

The total track length of all street railways and interurban light railways in Germany was 7,629 miles in 1907, an increase of 3.7 per cent over the preceding year. The capital invested was about \$359,464,280, or about \$47,118 per mile. The gauge of track was 4½ feet on 61 roads, 3½ feet on 148 roads, and less than 3½ feet on 28 roads. The street railways and the interurban light railways in Germany, as elsewhere in

Europe, are of essentially different character. Thus, while 63.6 per cent of all German street railways carry nothing but passengers, this is the case for only 1.9 per cent of the interurban light railways; while 96.1 per cent carry either freight and passengers or freight only. Moreover, while in street railways the increasing use of electricity is most noticeable, 76.2 per cent of all such roads now being operated electrically, not less than 91.2 per cent of the interurban light railways are still operated by steam.

Some interesting data are given as to the relations between track and population, and as to the amount of passenger traffic. There was 0.76 mile of track for every 10,000 inhabitants in Berlin, 1.43 miles in Leipzig, 1.59 in Essen-Ruhr, 1.62 in Dresden, and 3.25 in Hanover-Linden. For every 10,000 inhabitants in Cologne, 1,972,473 passengers were carried on street railways; in Frankfurt, 1,925,462; in Leipzig, 1,873,457; in Dresden, 1,775,377; in Hamburg-Altona, 1,715,823; in Dusseldorf, 1,594,308; and in Berlin, 1,667,307. The highest figure would give an average of nearly 197 rides per inhabitant per year.

Reference is often made to the cheap fares prevalent in Germany, but on the other hand the absence of transfers is usually overlooked. Thus a passenger can ride 10 miles in Berlin for 2½ cents, under the conditions imposed on the Grosser Berliner Strassenbahn, but he must pay another 2½ cents every time he changes cars. With regard to the Berlin Stadtbahn, Government Councilor Kemmann says:²

Low as are the single fares charged on the Stadtbahn, the commutation rates are simply ruinous. A private company which should undertake to operate under them would soon become bankrupt, and the Government has to earn the interest on the capital it has invested in the Berlin Stadtbahn, from the profits on long-distance riders elsewhere. This situation is clearly described in a statement made recently by the Minister of Public Works to a committee of the Chamber of Deputies when he said: "Many of the holders of commutation tickets pay only six-tenths to seven-tenths of a cent for a 2.4-cent ride. This is below cost price, and leads to the abnormal condition that outside taxpayers have to make good the deficiency from this cheap transportation to the extent of 1.2 cents per ride."

Mr. Kemmann furnishes also the following succinct statement as to fares in Berlin:

It may not be out of place here to refer to the system of zone fares introduced by the Berlin Elevated and Underground Railway Company. The management of this company followed the state railways in introducing two classes of fares, second and third, in city rapid transit, each class having separate compartments for smokers and nonsmokers. This, seemingly, is too many classes for city transit, but it was difficult to see how to do without this two-class system, to which Berlin had grown familiar through decades. From 15 to 20 per cent of the passengers ride in the second-class in spite of the 1½ cents higher fare. The third-class fare on the Elevated and Underground Railway is 2½ cents for 4 stations, 2½ cents up to 7 stations, 5 cents up to 10 stations, and so on. For every 3 stations an additional 1½ cents is charged, the average distance between stations being about half a mile. This works out to an average per

¹ This analysis leaves one road unaccounted for.

² Electric Railway Journal, vol. 34, No. 1, p. 13.

passenger of 3.3 cents with a line $10\frac{1}{2}$ miles in length and with 23 stations. The average ride is $2\frac{1}{4}$ miles, so that the average fare per passenger is 1.36 cents per mile, a figure which is fair and well adapted to Berlin conditions. Single tickets only are sold. There are no season, commutation, or through tickets, nor passenger tickets of any other kind, except so-called early-hour tickets and a certain rebate granted to children. Single tickets used before 8 o'clock in the morning—"early tickets"—cost $1\frac{1}{4}$ cents less than ordinary ones, the minimum, however, being 2½ cents. Children less than 6 years of age, under charge, are carried free. If there be added to this the statement that dogs are carried for 2½ cents up to the tenth station and 3½ cents beyond, the entire tariff in force on the Elevated and Underground Railway has been stated.

Mr. Kemmann remarks that, as in New York City, for example, the most remote suburbs of Berlin cry out for subways and cheap fares, and are not concerned as to how the taxpayers in subsequent years shall meet the burdens imposed by nonpaying lines.

For the last ten years the Prussian State Railways' management has been interested in the possibilities of the equipment of some of its lines with electricity. Becoming convinced as early as a decade ago that direct current at ordinary voltages would not suffice for heavy long-distance service, the Government inspired the Zossen trials of 1901 to 1903 in which 3-phase current was used. These tests produced valuable results as to the resistance to train motion at very high speeds, but also indicated objections in the operation of two or three overhead conductors. The development of the single-phase system soon after the Zossen trials led to the cessation of the 3-phase experiments; and a project was drawn up for a single-phase line between Hamburg and Berlin. This was abandoned on account of the high cost. At about the same time the government railway officials inaugurated an elaborate series of experiments with single-phase motors on the Niederschonweide-Spindlersfeld Line. These were successful in every respect. Shortly afterwards the Hamburg-Blankenese Ohlsdorf single-phase line was built and placed in operation, and plans for the adoption of electricity were prepared by the management of the Berlin Stadtbahn and the suburban steam lines. The investigations showed that single-phase current only could be considered, as it was found that even high-tension direct current would require an uneconomical number of substations.

The plans worked out by the Prussian officials in Berlin gave particular attention to the electrification of those lines which could be operated at a great reduction in cost, if the change in motive power were made. Owing to the high price of good coal in Germany, it was considered advantageous to make all estimates on the basis of using gas-engine generating sets. Large deposits of lignite are to be found in the Cologne district, and it was therefore proposed to equip with electricity one of the government railways which extends from Cologne to Trier and which hauls a great deal of freight over heavy grades. The subject was considered of such interest that in 1906 the Society of

German Mechanical Engineers, of which several officials of the Prussian State Railways are members, called for a prize essay on the best method of electrifying a 124-mile line operating in a mountainous country and involving the movement of freight trains weighing up to 600 tons. One condition was that the power station should use gas engines for generation. Four theses, of which three were given prizes, were entered in the competition. It is noteworthy that in all the four plans offered preference was expressed for single-phase current transmitted at 40 cycles, 60,000 volts, and used at 10,000 to 20,000 volts on the trolley wire.

Although the feasibility of this project was shown by these four independent reports, the war department would not, for strategic reasons, allow the electrification of this line, since, being so near the French border, the department held that in case of an invasion it would not be difficult for an enemy to blow up the power house and so destroy the power-transmission systems. Nevertheless, the Prussian State Railways asked the Allgemeine-Elektricitäts-Gesellschaft to build a single-phase freight locomotive for the Oranienburg experimental division, and experiments with this have demonstrated that single-phase locomotives can successfully and economically cope with heavy traffic.

More recently the Government has been giving its attention to the proposed equipment of the Leipzig-Bitterfelde-Magdeburg Line, which is 79.60 miles long, and the Leipzig-Halle Line, 22.49 miles. It is proposed to use a working potential at the trolley of 10,000 volts.

An interesting development in electric-railway work is that carried out by the Prussian State Railway department in the use of storage-battery cars in sections of the country and on light railways where it would not pay to operate regular trains with steam locomotives and full train crews. There are now 80 of these cars in service, and the results of nearly two years' use are said to be satisfactory. The ordinary lead-lead battery has been used. The unit train is composed of two double coaches, i. e., two nearly identical car sections coupled closely together. Each car has at its outer end a tank or bonnet section only half as high as the passenger sections of the coach, in which the batteries are contained. The battery consists of 168 cells, half of which are carried in the front tank and half in the rear; and the cells are so thoroughly isolated that there is no annoyance to the passengers from the fumes. The tanks give an extreme length to the car, but this objection has been met by the subdivision and the coupling of the two sections, which enables them to take short curves easily.

These coaches are equipped with two 80-horsepower motors, operating at a potential of 310 volts. They weigh about 55 long tons each, have a seating capacity of about 100, with an extra compartment for the train crew; and can attain a maximum speed of 31 miles an

hour. One charge of the batteries will run them for about 65 miles. The subdivision of the battery serves as a measure of safety, and the coach can be operated with one-half of it in case of necessity. The cars are equipped with electrical, air, and hand brakes.

The annual report of the Public Service Commission for the first district of the state of New York, for the year ending December 31, 1908, contains an elaborate review of the laws and regulations applying to street and interurban railways in Prussia, where control is primarily the function of the central government and is very strictly enforced through the Minister of Public Works and the Minister of the Interior. The latest general regulations are those which went into force in January, 1907. The same report contains a summary of the methods of supervision that are applied in England, chiefly through the board of trade, the local authorities having means also for securing liberal terms from a company when granting its special act or order which answers to the American franchise. The report says with regard to both countries:

To an American, the striking feature of state supervision of street railways in England and Prussia is that it is devoted chiefly to the prevention rather than to the correction of abuses. Supervision does not wait until an abuse develops. It attempts to insure the adoption of such safeguards that serious abuses will be unlikely to develop. Supervision begins with the initiation of the enterprise. Plans of construction are subjected to a searching inquiry, and must be altered where necessary to protect other private or public interests or to insure the safety or convenience of the public. The plans of cars and equipment must also be submitted for approval to the state authorities. Before the new line is opened it must undergo a thorough inspection. Future essential changes in construction, cars, or other equipment must also be submitted for approval. In addition, certain definite regulations are laid down for the maintenance and operation of the enterprise.

Those who are connected with private companies in either country complain that regulation is overdone and that the conditions imposed check the industry and tend to deprive the public of needed service to an extent not appreciated in America, where much greater freedom prevails.

Bavaria.—In the kingdom of Bavaria the government has given much attention to the matter of electrification, and has recently published the results of an investigation extending over the entire Bavarian State Railway System. It is estimated that in the year 1906 the railways, including all the state railways in Bavaria proper, but not those in the Pfalz, if electrified, would have required 517,839,000 kilowatt-hours. It is further estimated that generating stations with an aggregate rating of 606,000 horsepower would have been necessary in 1906, and that the country possesses sufficient water power to furnish the entire amount.

Of course, from the standpoint of the management, only considerations of economy can justify electrification, that is, those lines must first be electrified where waterpower is cheapest and coal most expensive,

and also where the density of traffic is comparatively great. The investigation has shown that, as the water power is nearly all in the Bavarian Alps, electrification is more economical for lines of small density of traffic in the southern half of the country, near the slope of the Alps, than it would be for northern lines with much greater density but where long transmission lines would be required. In some instances the density of traffic in northern lines should be twice as great as in southern lines to get the same economy. The critical price of energy per kilowatt-hour in the south is between one-fourth and one-half cent, against three-fourths cent in the north.

It is now stated to be the intention to equip a number of lines. A beginning will be made with the line from Salsburg through Reichenhall to Berchtesgaden and from Garnisch to Griesen, as well as with a new line which is being built between Garnisch and Scharnik. For the fast passenger trains locomotives are to be built each having four pairs of driving wheels and being capable of moving a 175-ton train exclusive of locomotive weight, with a speed of 50 miles per hour. The mountain grade of 4 per cent between Kirchberg and Hallthurm, which has a length of 3 to 4 miles, can be run with a train of 90 tons at a speed of nearly 19 miles per hour. The schedule running time between Salsberg and Berchtesgaden will be shortened by thirty-five minutes.

The Bavarian Government proposes an expenditure of \$1,435,000 during 1909 for the first installment of the railway electrification. The electro-motive force will be 10,000 volts and single-phase will be used throughout, as in Prussia.

SWITZERLAND.¹

The Swiss Government has just issued its railway statistics for the year ending 1907. There were then 36 street railways in operation, with a total length of 249 miles (402 km), of which 31 meter-gauge lines having a combined length of 162 miles (261 km) were served by electric apparatus only. The only 4-foot 8½-inch-gauge street railway reported in Switzerland is a 1.8-mile (2.9 km) line in Lucerne. The street railways carried 97,367,553 passengers and 184,648 tons (181,561 metric tons) of freight over 14,304,664 train-miles (23,072,029 train-km). Their total gross income was \$2,376,492 (12,313,430 Fr.) and the total operating expenses were \$1,824,874 (9,455,353 Fr.). These results were obtained with 2,848 employees, 8 steam or electric locomotives, 109 freight cars and 859 passenger coaches, of which 661 were motor cars.

There were in service 42 interurban narrow-gauge railways, of which 21 roads, with a total length of 258.3 miles (416.6 km), were operated exclusively with electricity, while three others, with a total length of 15.3 miles (24.7 km), used a mixed service with steam locomotives. All of the electric and mixed lines were

¹ Electric Railway Journal, Jan. 1, 1910.

of 39.37 inch (meter) gauge. The total length of the steam narrow-gauge lines was 318.7 miles (514 km). The combined railways carried 11,317,588 passengers and 801,005 tons (787,616 metric tons) of freight over 3,463,768 train-miles (5,586,722 train-km). Their total gross income was \$2,616,645 (13,402,307 Fr.) and the operating expenses were \$1,645,731 (8,527,102 Fr.).

The rack and pinion railways numbered 12 and totaled 60 miles (97 km) in length. Only three lines, having a combined length of 10.5 miles (16.9 km), were all-electric and three more, totaling 16.44 miles (26.1 km), were mixed steam and electric. The 12 roads carried 1,031,006 passengers and 71,179 tons (69,989 metric tons) over 187,573 train-miles (302,538 train-km). Their total gross income was \$732,200 (3,793,781 Fr.) and the operating expenses were \$301,115 (2,026,505 Fr.).

The cable railways numbered 36 and had a total length of 19.63 miles (31.66 km), mostly of meter gauge. Of these lines, 22 having a total length of 13.22 miles (21.32 km), were operated electrically. They carried 6,060,926 passengers and 166,481 tons (163,698 metric tons) of freight over 353,833 train-miles (570,716 train-km). Their total gross income was \$362,785 (1,879,714 Fr.) and the operating expenses were \$202,628 (1,049,889 Fr.).

FRANCE.

The latest available report on tramways and light railways, that of 1905, issued by the Minister of Public Works, divides these lines into three definite groups. The first of these is that of "roads of local interest," the second is that of tramways for passengers and goods, and the third is that of tramways for passengers and express or for passengers only. The last division is subdivided in the statistics along the line of distinction indicated. The first group of roads of local interest consisted essentially of ordinary steam railroads of short distance but not differing particularly from main steam lines. It included, however, the Paris Metropolitan Underground, whose figures reported separately show gross earnings equal to 25 per cent of those given for all the regular tramways of France. This group is credited with a total of 4,301 miles built and 1,092.5 miles under construction or planned.

The second group of lines not included in street-railway statistics is that of tramways for passengers and freight, which are again of the interurban type and depend largely upon steam. This group contained 3,050 miles in operation and 1,010 miles building or planned. In this group were included a few roads with electric traction and one or two short funicular roads or "inclined planes." The third group of recognized tramways is credited in the summary with 1,252 miles in operation and 216 miles

building or planned. The actual tables show, however, a total of 1,645 miles in operation, as exhibited in the following statement:

Tramways of France: 1905.

	Class 1.— Tramways with express, etc.	Class 2.— Tramways for passen- gers only.
Number of lines.....	33	76
Length of line in operation, miles.....	499	1,146
Number of passengers.....	214,367,036	657,117,421
Receipts.....	\$5,346,012	\$15,150,232
Number of employees.....	6,240	23,348
Number of cars.....	1,865	4,865

Of these lines 87 used electrical power, 20 used steam power, 9 used horsepower, and 9 used compressed air, while a few employed both steam and electricity, or compressed air and storage batteries.

The gross earnings of these systems were, as shown above, \$20,696,244, while the net earnings were reported as \$5,706,736, and the percentage which the total operating expenses formed was placed at 73.4 per cent. The motor cars included in the above total numbered 3,851, and the other motive power consisted of 167 locomotives and 2,712 horses.

The Metropolitan Underground Road of Paris reported the following figures for 1905:

Length of track (miles).....	20.62
Number of trains run.....	781,388
Distance run (miles).....	4,083,121
Total cars.....	663
Locomotive cars.....	305
Trail cars.....	358
Employees of all kinds.....	2,784
Passengers carried.....	178,784,767
Gross receipts.....	\$5,107,470
Net earnings.....	\$1,304,136
Operating percentage.....	60.1

Up to the present time very little has been done in the way of introducing electricity on the main lines of the country. One example is the installation made on the Paris-Orleans Railway, one of the large trunk lines reaching from the capital to Bordeaux and other large cities in central and southwestern France and connecting with the Southern Railway (Chemin de Fer du Sud) which reaches Spain. The newer terminal near the Quai d'Orsay is approached through a long tunnel which rendered steam objectionable, and hence electricity was adopted. The distance to be covered in this manner is 2.4 miles, and the locomotives must draw 160-ton trains over this distance on a schedule of eight minutes, and over a profile containing one grade of 1.1 per cent for a distance of 1,440 feet. Eleven electric locomotives were furnished for this equipment, each weighing 55 tons and equipped with four motors of a nominal rating of 225 horsepower each. Electrical energy is supplied to the locomotives in the form of direct current at 575 volts, through third-rail, side-

rail, or overhead conductors, as local conditions demand.

This system and that of the Paris underground have now been working for some years successfully, but no further step in the adoption of electricity was taken until quite recently, when the Midi Railway, running through southern France, gave out contracts for a project which includes 250 miles of its main track from Bordeaux to Toulouse. This installation, the first important one of its kind in France, will use the alternating, single-phase current of 15 cycles frequency.

AUSTRIA.

Figures published by the Government of Austria for 1905 show that the total length of all electric railways in that country was 293.29 miles, of which 70 per cent was standard-gauge and the remainder narrow-gauge. About 50 per cent of this mileage was double-track, due to the fact that practically all of the electric lines are operated in cities. However, only 7.3 per cent of the light steam railroads (corresponding to the service of American interurban lines) was double-track. Passenger service only was given on 91.6 per cent of the electric railways, mixed service on 7.85 per cent, and freight service alone on 0.53 per cent. The rolling stock of the electric railways consisted of 5 locomotives, 172 snowplows, 1,624 motor cars, 1,248 trailers, and 49 freight cars. The total seating capacity of all passenger cars was 106,170. The average annual train-mile was 124,453 per mile of track; average passenger-mile, 1,891,029 per mile of track; average ton-mile, 12,603 per mile of track. The average gross earnings per mile were \$26,709; average operating expenses, \$16,974 per mile; average interest on investment, 7.22 per cent. There were 36.5 employees per mile of track.

At the present time considerable interest in the electrical equipment of steam railroads has awakened in Austria, especially in the Alpine Province of the Tyrol. The first single-phase railway in the world, the Stubaitalbahn, was built in the Tyrol, and the absence of coal and the large amount of available water power have given added impetus to the construction of electric roads. Statistics indicate that there are about 5,500,000 horsepower available in the water powers of Austria, or 187 horsepower for each 1,000 inhabitants. This amount is surpassed only in Switzerland, where there is 454 horsepower for each 1,000 inhabitants. The figures showing the percentage of utilized to available water power are, Switzerland, 25 per cent; Germany, 20 per cent; France, 18 per cent; Italy, 14 per cent; and Austria, only 9 per cent. A commission appointed by the Government has been systematically studying the subject of utilizing all of the available water power for electric traction.

The next step in the conversion of steam railways to electric traction will probably take place in the Tyrol, where several large water-power stations are to be built with capacities for furnishing from 2,000 to 12,000

horsepower. The longest electric line in the Tyrol is that between Trient and Malè, 38 miles in length, operated by direct current at 800 volts. A more interesting line recently under construction is the Maria Zell road, now nearing completion in Lower Austria. This is the longest single-phase railway on the Continent, being 57 miles long, and has 600 volts current on the trolley wire. Water power is used to drive the generators. The overhead line is equipped with a catenary similar to that of the Hamburg-Blankenese Railway, with strain adjustments every mile or mile and a half. For the present service 14 locomotives, each equipped with 2 single-phase, 250-horsepower motors will be used. Owing to the narrow-gauge, the motors are located above the trucks, and drive on the wheels by means of connecting rods.

HUNGARY.

The following figures are taken from an official report on the Hungarian electric railways, for the year ending 1907, from which it will be seen that the total mileage of the interurban railways was practically 17.40 miles of single-track, and the total mileage of the city railways 130 miles of single-track. During 1906 the electric-railway mileage of the Vizinal Railway system was reduced about 3.11 miles of single-track, owing to the suspension of electric service on the Szatmar-Erdöd Railway. Since January 1, 1907, this system has been a part of the Hungarian State Railways. The city railways show a total increase in length of 5.28 miles, principally in Budapest and vicinity.

TABLE 178.—*Mileage of electric railways of Hungary: 1907.*

	Total track (miles).	Double-track (miles).	Length of route (miles).
<i>a. Vizinal Railway system.</i>			
Total.....	17.38	4.92	16.86
Budapest-Budaörs.....	4.87		5.39
Budapest-Szentlőrinc.....	7.37	4.92	7.15
Miskolc-Diósgyőr.....	5.14		4.31
<i>b. City railways.</i>			
Total.....	129.98	86.83	127.16
Budapest locomotive line (0.82 mile out of service).....	44.65	42.16	44.65
Budapest.....	27.87	27.36	27.83
Frant Joseph Subway (to Budapest).....	2.30	2.30	2.30
Budapest-Csepel-Rakospalota.....	10.25	7.00	10.69
Budapest and vicinity.....	4.25	2.31	4.21
Fiuman.....	2.74		2.47
Miskolc.....	4.54		4.09
Nagyvárad.....	1.49		1.49
Nagyvárad.....	0.52	1.12	7.77
Pozsony.....	4.97	1.56	4.85
Sopron.....	2.84		2.38
Szabalka.....	6.21		6.21
Sombathely.....	1.88		1.78
Temesvár.....	6.47	3.93	6.47

It appears from other sources of information that no new electric railway was opened in Hungary. The number of all roads is still 14, but the track length has increased from 124.90 miles to 129.98 miles. The track length of all electric street railways in Hungary forms 68 per cent of all street railways in that country,

the others being operated by horses or by cable. The total capital invested in the 14 roads is \$22,424,524, or \$172,523 per mile. The average profit was 8.2 per cent of the invested capital.

RUSSIA.

According to latest information available, there were in Russia 28 cities with electric street railways and 2 suburban lines.

The total length (single track) of all street railways, exclusive of 2 which failed to report track, was 447.40 miles, and the total length of the suburban lines 12.58 miles.

The cities of St. Petersburg and Kharkov own their entire electric-railway systems; the city of Moscow owns 83.26 miles out of a total length of 89.48 miles; the city of Yekaterinoslaw owns only 4.35 miles out of a total of 18.27 miles. In addition thereto the street railways of the health resort of Piatigorsk are owned by the administration of the Caucasian mineral waters, which is a government institution. The aggregate length of all electric railways under public ownership is 170.26 miles.

The roads have been built and equipped mostly by foreign contracting firms; in St. Petersburg and partly in Moscow the contracts were given by the municipalities to the Westinghouse Electric and Manufacturing Company.

The total number of motor cars is 2,069, the total number of trailers 604; in addition thereto there were 2 electric locomotives for freight traffic and 4 snow sweepers. Each motor car is equipped with at least 2 motors; in Moscow and Kiev there were in all 84 additional motors.

The gauge of the tracks is not uniform; the prevailing width is 3.28 feet (1 meter), but in 9 cities, including St. Petersburg, Moscow, Warsaw, and Riga, the width is 5 feet; in Rostov on the Don it is 4.71 feet; in Nizhni-Novgorod the city proper has a narrow-gauge track 3.28 feet wide, and the annual-fair section (on the other side of the river) a wide-gauge track (5 feet).

The prevailing voltage is 550 volts, direct current; in Moscow it is 575 volts, and in 10 other cities 500 volts, direct current.

ITALY.

The progress of work in applying electricity to the main lines of railway in Italy has been more rapid than in some other countries, but is not so much in evidence from the fact that some of the most notable examples have been newer roads that were electrified at the start. The only two lines which have been converted to electric traction and which are now in operation are given in the statement in the next column.

A long period of cessation from active work followed the opening of the Lecco-Chiavenna line in September, 1902. Several projects have been under way for the

last two years, however, and are rapidly nearing completion. The government budget calls for the conversion of a total of 186 miles by the end of 1912, and a large part of this was well under way during 1907-8. The two centers of the government's activity in electrifying its steam-railway system are Genoa and Milan. Around Milan four projects have been started. The first is 16 miles of the Milan-Ceresio suburban line from Gallarate to Avone Junction, a new single-track railway running along the west shore of Lake Maggiore, connecting with the Simplon tunnel line at Domodossola. Another project is 20 miles of the road from Gallarate to Laveno on the St. Gotthard line. North of Domodossola it is proposed to electrify the remaining 11 miles up to the mouth of the Simplon tunnel at Iselle, on which the prevailing grade is $2\frac{1}{2}$ per cent. Still another project is the electrification of the suburban lines northeast of Milan, connecting Lecco, Usmate, Colozio, Ponte, and San Pietro, and having a total length of $50\frac{1}{2}$ miles.

DATE OF OPENING.	Name of line.	Nature of service.	Form of power.	Miles in operation. ¹
October 16, 1901....	Milan-Varese Porto Ceresio.	Local suburban...	Steam...	45
September 4, 1902..	Lecco-Collo, Sondrio-Chiavenna.	Country local tourist.	Water...	66

¹ Total mileage of lines for suburban and local traffic in operation up to December, 1908, 112.

In southern Italy the Naples-Salerno line, together with a short branch, totaling 31.6 miles, is to be operated electrically if suitable water power can be developed for generating purposes.

Several small projects, consisting chiefly of short sections on heavy grades in the Ligurian Alps, and comprising in all 32 miles, will be completed in northern Italy by the end of 1911. One of the longest of these lines is the section from Savona to San Giuseppe di Cairo, a distance of 12 miles.

The most important electrical project of the Italian State Railways, involving nearly 20 miles of track, is the conversion of the line from Genoa to Busella, on the road to Milan and Turin, in connection with the proposed electrification of the entrance tunnels in Genoa. The road to be electrified was formerly part of the main line between Genoa and Milan. The grades on this road were excessive and there was one tunnel near the summit. Several years ago another line was built having much easier grades, and this new line, at the present time, carries the major part of both freight and passenger traffic. The old line has been used only as a relief track when congestion was severe on the new line, and will when electrified, be used very largely for freight. This will be the first line in Italy on which electric traction will be employed under conditions closely approaching main-line traffic, as the trans-Alpine service is conducted on Swiss territory.

Current for operating the electric locomotives is to be generated in a steam-power station in Genoa. Two steam turbogenerators of 5,000-kilowatt capacity have been installed, and a third unit will be added when the underground lines in Genoa are electrified. The generators deliver 3-phase 15-cycle current at 900 revolutions per minute. The generator voltage is 13,000, and current is transmitted at this voltage over transmission lines to four substations equipped with static transformers to reduce the potential to 3,000 volts between phases on the line. The two trolley wires have each an area of 100 square millimeters, which is slightly less than that of No. 0000 B. and S. wire gauge. The rails are electrically bonded for the return circuit.

The 3-phase electric locomotives used on this line are remarkable for their great weight. Each locomotive has five driving axles coupled together, and carries two 800-horsepower motors which are connected to the wheels by a system of rods and cranks. The two motors are of the 3-phase type and have eight poles. With a frequency of 15 cycles they are designed to drive the locomotive at a constant speed of 28 miles per hour when running in parallel, or 14½ miles per hour when connected in cascade. The locomotives have an adhesion weight of 60 tons, which can be increased to 75 tons by adding ballast. It is the intention to operate one of the locomotives at the head of a freight train and another in the rear, and it is believed that it will be possible to run trains of 20 freight cars each averaging 20 tons, or a total train weight of 550 tons, at a constant speed of 28 miles per hour up the long grades, which exceed 3½ per cent. As the line is divided into three-block sections, it is expected that it will be possible to haul 1,680 cars over the line in twenty hours, allowing a ten-minute interval between trains.

Traffic on these lines is heavy in both directions, and the adoption of 3-phase locomotives makes it possible to replace much of the energy expended in hauling trains to the summit by regenerating current and feeding it back into the line as the locomotives and trains descend the grade into Genoa. Provision has been made whereby a maximum of 4,000 kilowatts regenerated by trains descending the steep grade can be absorbed at the power house through an automatic rheostat.

According to a recent authority there were in 1907-8 some 60 street-railway undertakings in Italy. The available statistics relating to these railways are, however, very meager. The length of track and the number of motor cars for 50 of the 60 roads were reported as 1,026.38 miles and 2,472 cars. As measured by trackage, the majority of these roads are comparatively small—only 1 having over 100 miles; 6, 50 to 100; 6, 25 and under 50; and 37, under 25 miles.

SPAIN.

Very little definite data can be obtained with regard to the development of street and electric railways in Spain. Thirteen cities in the Kingdom appear to have street-railway systems, all of which are reported as electrical, and in some of these cities, such as Madrid, Bilbao, and San Sebastian, more than one company is in operation. The total length of track in miles for these roads is 286.1, and the number of motor cars is reported as 1,123. This probably includes trail cars as well. Of this number, Barcelona appears to have 400 cars; Madrid, 350; Bilbao, 110; and Seville, 70. As a general thing these systems are operated with direct current, 550 volts. Many of them have been developed with English and German capital, and use also apparatus from those countries.

JAPAN.

A number of electric-railway systems have been installed in the Empire of Japan in such cities as Osaka and Tokyo. Table 179 presents all the statistics available relating to the street and electric railways of Japan. The conditions are somewhat adverse to street-railway development, the bulk of the population being forced to live upon incomes far below those of the working populations of America and Europe. Moreover, the streets of all the cities are extremely narrow and the universal use of jinrikishas as a cheap means of conveyance limits the amount of possible patronage from the well-to-do. As progressive a country as Japan, however, is not likely long to be without these conveniences of modern life and, as a matter of fact, Tokyo has had a street-railway system since 1882. The first line used animal traction. In 1903 the number of companies operating was reduced to three, and all the roads were electrified, while in 1906, following American methods, all these roads were unified under one management, that of the Tokyo Electric Street Railway Company.¹ This corporation, operated under a perpetual franchise from the city, was organized by Japanese and is managed by them in all its departments, and it is noteworthy in that its capitalization is entirely in common stock, of which there was \$16,500,000 at the end of 1907. It is understood that practically the entire amount is held by local investors, who have been receiving an annual dividend at the rate of 9 per cent, paid twice a year. The total operating expenses are 50 per cent of the gross receipts. Of the net receipts, 10 per cent annually is required to be placed in a reserve fund and one-third of the remainder goes to the city as compensation for the use of the streets. During 1907 the gross receipts were \$2,490,000 and the amount paid to the city was \$164,340.

¹ The following data relating to this company do not agree with that shown for "Tokyo Ry. Co." in Table 179. The data were obtained from different sources.—Census Bureau.

An extraordinary example of the influence of a new invention or service, similar in effect to that of the tunnels around New York on the ferry-boat service, is shown in the reduction of the number of jinrikishas within a few years from 40,000 to 20,000 in Tokyo; though even the smaller number would seem a liberal provision for a city of 2,000,000 population. A more striking illustration of the displacement of human motive power by machinery could hardly be cited. The popularity of the street-railway system is also shown by the rapid increase in the number of passengers carried, which at the beginning of 1908 had already an average of 300,000 daily. The fare is equal to about 2½ cents American.

A car crew consists of three men and, as a matter of fact, the system generally would seem to an American manager heavily overmanned, the total number of employees being about 7,000, or 10 per running car. Of these, in 1907, 246 were inspectors, 1,873 were motormen, 1,910 conductors, 189 apprentices for work as car employees, 57 power-station men, 30 lighting-station men, 152 barn mechanics, 337 switchmen, 583 yard men, 376 linemen, 277 trackmen, 274 construction men, and 445 painters and carpenters.

The employees on the cars, dressed in the conventional blue uniform with brass buttons, work on an average ten hours a day, with the exception of the motormen and conductors, whose time depends upon the number of miles in their respective runs. These latter are expected, however, to run about 60 miles in a day of eleven hours and are paid extra for time beyond eleven hours. The runs are continuous and are not broken by the two-hour relief crew, as in America. For lunch only twenty minutes are allowed, but at the end of each round trip the men have six minutes for smoking. Motormen and conductors receive wages, a guaranteed portion of which is based upon a minimum of \$5.98 per month up to \$10.46 per month for the sixth class. The other portion is based upon a cooperative plan, regulated by the net receipts of the company, 9 per cent of which is set aside to be distributed as wages. After deducting from this the aggregate sum of the guaranteed wages, the remainder is distributed in the form of a bonus, which is apportioned to each conductor and motorman according to his classification in rank.

The system had an equipment in 1907 of about 700 cars in daily use, all of the closed type and all constructed in Japan. These were of various sizes and were operated over 90 miles of narrow-gauge track, to which an extension of 80 miles was then proposed. The narrow-gauge track is due to the contracted nature of the streets, but the cars themselves have wide bodies and nearly fill up the thoroughfares.

Cars are started by the ringing of two bells and one bell is rung for a stop. The cars do not stop at calls on every corner, owing to the great inequality in the

length of the blocks, so that stopping places, which are indicated by notices painted on the trolley poles along the streets, sometimes appear in the middle of a block. Each car, except the smallest one, has two conductors—one inside to collect the fares and one at the back to keep an eye on the trolley and on the tickets and to help passengers get on and off. The conductor on receiving the coin holds it up, states its amount, and inquires as to whether one or more tickets are required, or a transfer, conducting the transaction aloud with the passenger. The object of this is to prevent disputes and short change and the conductor is compelled to make good personally in any case of dispute. The fares received are deposited in a small leather satchel suspended from the neck of the conductor, after a manner not altogether unfamiliar in America. The inside conductor gives each passenger a punched ticket, which is collected by another conductor on the rear platform and is deposited in a box carried on the car there for that purpose. The passenger can not alight before he has produced and given up his ticket. The tickets are numbered consecutively, but there is no fare-registering system. Transfers are given to all intersecting lines and even a transfer upon a transfer if desired. There are few strap hangers, but those who do stand up rest for support on bamboo loops, instead of leather straps, placed above the seats. The floors of the cars are not covered with grating as in this country, as the clogs worn by most of the people would catch in the cracks and make walking in the cars very difficult.

The visit of the American fleet to Japan in 1908 gave many Americans an excellent opportunity to make practical trial of the suburban and interurban developments. The Pacific Coast Chamber of Commerce made a special report of its trip over the double-track road between the cities of Osaka and Kobe, situated 20 miles apart, with cars operating on a three-minute headway. The interurban company operates some 50 cars, each 44 feet from end to end, mounted on double trucks; and in his reception speech to the chamber the managing director called attention to the fact that the cars, trucks, motors, controllers, air brakes, rails, steel girders, overhead construction, generators, engines, boilers, pumps, and condensers all came from the United States. He also called attention to the fact that the whole system was designed and operated under a Japanese chief engineer who was a graduate of an American university and that the promoter and president of the company had acquired his knowledge of interurban-railway development from a trip made through the United States for the purpose of studying railway problems.

In Osaka, with a population of 1,700,000 (the second largest city in Japan), the transportation and lighting systems are owned by the Osaka Electric Railway Company. The street-railway system has the equiva-

lent of 22 miles of single track, and the rolling stock comprises 100 cars, of which 70 are in daily service, each car averaging 97 miles a day. The fare ranges

from 1 to 5 cents. Workmen's half-price tickets are good until 7 a. m.

TABLE 179.—STREET AND ELECTRIC RAILWAYS IN JAPAN.

Num-ber.	NAME OF ROAD.	Single-track mileage.	CARS.		Gener-ating capacity (kilo-watts).	Motive power.	Capital paid.	Loan.	Receipts.	Expenses.	Earnings.	Date of oper-ation.
			Single-trolley.	Double-trolley.								
	Total.	324.0	1,308	204	123,857		\$27,888,630	\$4,051,891	\$4,304,016	\$1,993,473	\$2,308,545	
1	Bungo Electric Ry. Co.	7.1	17		150	Steam, water.	79,680	359	26,047	16,144	9,903	May 10, 1900
2	Hanshin Electric Ry. Co.	26.5		37	800	Steam.	1,594,000	263,741	417,332	228,409	188,924	Apr. 2, 1905
3	Imperial Government Rys. (Kobe)	16.0	32		100	Steam.	200,082					Dec. 5, 1905
4	Ise Electric Ry. Co. ¹	11.4	24		242	Steam.	348,000		56,384	25,270	31,107	Aug. 5, 1903
5	Iwamura Electric Ry. Co. ¹	15.3	3		90	Water.	54,780	28,998	7,369	6,403	906	Dec. 5, 1905
6	Kawagoe Electric Ry. Co. ²	8.0	8		100	Steam.	149,400		28,477	20,576	5,901	Apr. 16, 1906
7	Keihin Electric Ry. Co. ³	34.5	32	23	1,375	Steam.	1,587,375		320,333	139,518	180,815	Jan. 21, 1909
8	Kioto Electric Traction Co.	10.5	71		325	Steam.	883,950		139,519	71,465	68,054	Jan. 31, 1905
9	Nagoya Electric Ry. Co.	7.9	35		500	Steam.	408,000		70,632	35,223	35,309	May 6, 1904
10	Nankai Ry. Co.	18.4		24	1,000	Steam.	500,000					Aug. 21, 1907
11	Odawara Electric Ry. Co. ²	8.1	34		300	Water.	435,720	24,900	70,711	41,536	29,175	Mar. 21, 1900
12	Osaka Municipal Electric Ry. ¹	3.9	10		3,000	Steam.	2,071,517		31,352	22,183	9,200	Sept. 12, 1903
13	Seto Electric Ry. Co.	10.2	10		80	Boat.	114,540	39,164	18,626	11,033	7,593	Mar. 17, 1907
14	Sunai Electric Ry. Co. ²	4.1	9		275	Water.	136,920		73,045	23,777	14,301	Nov. 28, 1906
15	Tanagawa Electric Ry. Co. ²	9.4	30		450	Steam.	249,000	94,620	19,023	11,004	8,018	Mar. 6, 1907
16	Tokyo Ry. Co. ³	91.0	914	120	13,920	Steam.	17,554,500	2,926,300	1,237,438	1,068,282	1,068,282	Aug. 15, 1903
17	Tosa Electric Ry. Co. ²	9.3	30		225	Steam.	357,457	6,474	37,481	29,984	7,497	May 2, 1904
18	Yenoshima Electric Ry. Co. ²	6.8	12		225	Steam.	136,950	74,700	19,547	10,066	9,482	Sept. 1, 1902
19	Yokohama Electric Ry. Co.	6.4	28		300	Steam.	747,000		93,268	54,354	38,915	July 15, 1900

¹ The items of generating capacity do not add to the total. Information not available to harmonize the figures.

² Companies are operating both lighting and railway services. Capital, loan, receipts, expenses, and earnings for lighting and railway are not separately known.

³ The following roads are under construction: No. 20, Bungo Electric Ry. Co.; No. 21, Hiogo Electric Ry. Co.; No. 22, Ina Densha Ry. Co.; No. 23, Iwakuni Electric Ry. Co.; No. 24, Keihan Electric Ry. Co.; No. 25, Kobe Electric Ry. Co.; No. 26, Kure Electric Ry. Co.; No. 27, Minomo-Arima Electric Ry. Co.; No. 28, Naniwa Densha Ry. Co.; No. 29, Seiso Electric Ry. Co.; No. 30, Wakayama Water Power Electric Co.

BRITISH ASIA.

Table 180 is presented herewith, giving statistics of electric and steam railways in operation in various parts of the British Empire in Asia, with the date of the latest figures obtainable. Several of these roads have been put in with the assistance of American electrical engineers and some of them use American apparatus. The Bombay system may be taken as typical of the work of this character and is interesting from the fact that it was equipped for animal traction in 1874 with money furnished by New York capitalists. Electrification was begun in 1907 and was finished early in 1908. The route mileage of the system is 20.38 miles, double track, with the exception of a half mile. One interesting feature of the overhead construction of these lines is the clearance of 21 feet to 21 feet 9 inches, which is necessary to avoid interference with the portable shrines and mosques carried in procession during religious festivals. As most of the natives can not read, destination markers for the cars are carried in the form of colored disks in the daytime or colored lamps at night, in addition to the lettered destination signs on the cars. The number of passengers carried in 1907 by horse and electricity was 25,766,916, with a car mileage of 2,825,385 miles and gross passenger receipts of \$512,744, or an average fare per passenger of 1.86 cents.

The general traffic conditions of the system, like those in other cities in the British possessions in Asia, differ very materially from those of America or Europe. Most resident Europeans of the upper class and many of the rich natives keep their own carriages, which are not expensive of maintenance, and a large proportion of the laboring class is altogether too poor to ride fre-

quently, hence the tramway passengers are drawn chiefly from the ranks of the artisans, the shopkeepers, and the middle-class traders. Another limitation that prevailed in the earlier days of horse traction was due to the reluctance of high-caste Hindus to mix with those of lower castes, while Hindus of the lowest caste have not been permitted to enter any cars at all. The caste prejudice has broken down to a considerable extent, however, so far as the higher castes are concerned, and the practice of street-car riding is growing very rapidly among all classes. The highest rate of fare on the Bombay lines on ordinary cars is 3½ cents, for which passengers can ride 7 miles, half rates being granted to children only. It will be noted, however, that the average fare per passenger carried was less than 2 cents. The fare on first-class cars was about 50 per cent higher than on the ordinary cars, but the better cars do not seem to have proved altogether satisfactory, as the cheaper cars are so comfortable that Europeans and upper-class Indians are quite satisfied to patronize them. The company has therefore converted all the classes to one ordinary type.

TABLE 180.—Electric and steam railways of British Asia: 1907-8.

PLACE.	Capital.	Gross earnings.	Track miles.	Cars.	Passengers carried.	Car mileage.
Bombay, India, 1907....	(1)	\$520,790	41	182	25,766,916	.....
Mandalay, Burmah, 1907....	969,875	.....	13	24	2,619,221	543,397
Calcutta, India, 1907....	6,034,300	832,380	69	450	27,488,421	4,338,562
Colombo, Ceylon.....	1,254,200	.....	14	30	.....	.....
Delhi, India, 1908.....	652,000	.....	10	.....	.....	.....
Hongkong, China, 1907....	2,000,000	213,525	144	36	8,564,065	1,122,343
Georgetown, Penang.....	.....	.....	15	.....	.....	.....
Cawnpore, India, 1908....	(1)	.....	7	.....	.....	.....
Madras, India, 1907.....	807,809	.....	154	67	.....	.....
Rangoon, Burmah, India.....	(1)	.....	25	.....	.....	.....
Singapore, Straits Settle-ments, 1907.....	3,562,800	306,490	204	80	13,270,000	.....

¹ Tramway and lighting.

² Light and traction.

AUSTRALASIA.

Table 181 is presented in this section, comprising all that can be ascertained with regard to the street-railway systems of Australia, New Zealand, and Tasmania. Several of these systems are electrified, although Melbourne, the most important city in Australasia, still depends chiefly upon its extensive cable system. Recently a special study has been made by English experts of the electrification of the Melbourne suburban lines by the Victoria Railways Commission, but it is understood that the proposal to electrify will not be adopted for the present. The report in question deals with the travel, both tramway and railroad, in Melbourne and its suburbs and gives the number of journeys and the receipts per head of population. Melbourne has a very large population as compared with that of the whole state, its 526,000 inhabitants being over 42 per cent of the entire population of the colony of Victoria, as compared, for example, with the population of London, which is 20 per cent of that of England; of Paris, which is 6.9 per cent of the population of France; and of Berlin, which is only 5 per cent of the population of the German Empire. Moreover, the inhabitants of Melbourne are widely scattered over the district about the city, the density of the population being 2,064 per square mile, as against 11,195 for New York and 9,510 for Greater London. In the other cities of Australasia, such as Sydney, Perth, and Wellington, the populations are denser than that of Melbourne; hence it comes about that in Melbourne a large part of the transportation business, which in an American or European city would be handled by electric street-car lines or electric-railway systems, is handled by a distinct system of suburban railways. According to the report quoted, the tramways in and around Melbourne carried 60,558,098 passengers in 1907 and the suburban railways no fewer than 64,162,344, making a total of nearly 125,000,000, an average of 236 journeys per capita. The total receipts were \$5,650,000, giving an average receipt per capita of \$10.70.

As in Victoria, so in several of the other Australian colonies, the street-railway systems are not in the hands of the municipalities, but are under the control and ownership of the state government itself. This is the case with regard to Sydney, where the street-railway system for which data are given is owned and operated by the government of New South Wales. The system is operated along familiar English lines, using the overhead trolley with both center-pole and span-wire construction, although it is noteworthy that a very large portion of the equipment, including the generators and the steam plant, was obtained in the United States. Of the 777 cars reported, no fewer than 678 were of the single-deck type. Current for the system is generated at 6,600 volts alternating, and

is distributed to 7 substations and 4 battery houses, from which it is delivered direct to the supply wires at a potential of 600 volts. During the year ending June 30, 1908, the number of passengers carried by this system was no fewer than 155,017,982, while the car mileage was 18,069,810. The consumption of current is not determinable, as the units used for traction and lighting are not reported separately.

One of the largest systems in Australasia is that of Auckland, New Zealand, which is operated by the Auckland Electric Tramways Company, Limited, a corporation which took over the rights and system from a British concern and which uses apparatus generally of British design and construction. Auckland, with a population of only 75,000, had a service of 87 cars furnished to it by this corporation, which during the year 1907 carried no fewer than 22,474,537 passengers, making a mileage of 2,050,386. The average receipts per passenger were reported as 2.94 cents and the average cost per passenger as 1.76 cents.

Another fairly large system in New Zealand is that of Christchurch, which is also operated under private management. This city, with a population of only 68,920, was served by 99 cars, which were used in 1907 by 10,002,367 passengers.

In connection with Australasian development, and in fact with that of the Far East generally, the following remarks of Sir Clifton Robinson before the Tramway and Light Association in 1908 may be quoted appositely:

Australia has no extensive systems of mechanical tramways outside Melbourne and Sydney. The Melbourne cable tramways are worked by a company under arrangements with a joint board of municipalities. The Sydney tramways, mostly electric, are worked by a department of the state, and the voluminous reports issued are well known. Tramways in other towns are electric, except in Adelaide, where a large horse system has been taken over by the local authorities and is now being extended and electrified. In New Zealand there are only a few tramway systems, mostly electric; they await further population in order to develop, but, in proportion to the existing population, they do a remarkably large business. The construction and equipment, both in Australia and New Zealand, are similar to those in England. The same remarks apply to South African tramways, which, unfortunately, are suffering from the trade depression there.

I was much struck during my recent journey with the development of electric tramways in Tokyo, Yokohama, Shanghai, Hongkong, Singapore, Colombo, etc. These follow western models; indeed, most of them have been built and equipped by British engineers. In Japan, however, they are run by native officials; but in China Europeans are in administrative command, as in those towns in India where tramways have been installed. The natives take well to the innovation. The cars are usually divided into two classes. The main obstacle to greater development in eastern cities is the narrowness of the streets. This is particularly noticeable in Tokyo, the capital of Japan. The city is a network of electric tramways, either in operation or proposed, though there are several important main arteries of traffic too narrow to admit even a single line of rails. The greatest possible impetus is given to the promotion of important lines of electric railways extending from Tokyo and connecting with the large, and in some cases far-distant, provincial business centers.

TABLE 181.—STREET RAILWAYS OF AUSTRALASIA: 1907.

	Capital.	Gross earnings.	Net earnings.	Track miles.	Cars of all kinds.	Passengers carried.	Car mileage.
Auckland, New Zealand.....	\$3,165,000	\$702,255		26.45	87	22,474,537	2,050,296
Adelaide, South Australia.....	2,300,000			75.00			
Brisbane, Queensland.....	6,000,000	803,900		57.00			
Christchurch, New Zealand.....		455,900	\$290,400	53.00	99	10,002,367	1,355,202
Dunedin, New Zealand.....	1,300,000			20.77	69		
Ballarat (Victoria).....				25.50	48		
Bendigo.....							
Freemantle, Western Australia.....				8.50	14	2,291,055	454,071
Hobart, Tasmania.....	680,000			20.50	24		
Kalgoorlie, Western Australia.....	2,200,000	250,000		20.50	30	3,052,241	650,530
Sydney, South Australia.....				141.50	777	155,017,982	18,009,810
North Melbourne.....					25		
Perth, Western Australia.....	1,135,000	379,000		50.00	50	7,790,831	1,178,716
Wellington, New Zealand.....	2,500,000			33.00		16,897,084	1,711,096

SOUTH AFRICA.

A table of the street-railway systems of South Africa, compiled from various sources, is given below. It is believed that the list is fairly complete, although from the lack of any central source of information it is difficult to ascertain precisely all the facts. The chief systems are those of Cape Town, Durban, and Johannesburg, the last of which is reported to have had no fewer than 128 cars in operation at the time of the report. The system of Cape Town proper is credited with over 12,000,000 passengers carried during the year, and that of Durban with over 11,000,000. Several of these systems were originally horse railways, as, for example, that at Johannesburg, where the change in motive power from horses to

electricity was made during the period 1905 to 1907, when the length of the line was increased from 12 miles to the total of 26, which it is now reported to exceed by 3 or 4 miles.

TABLE 182.—Street railways of South Africa: 1907.

	Capital.	Track miles.	Cars of all kinds.	Passengers carried.	Car mileage.
Camps Bay.....		7.80	14	921,837	222,680
Cape Town.....	\$5,168,000	32.74	85	12,563,303	
Port Elizabeth.....		12.00	29	3,576,035	477,500
Durban.....	2,000,000	30.03	65	11,493,228	1,219,806
East London.....		5.25	15	1,653,397	165,339
Johannesburg.....		26.00	128		
Kimberley.....		5.80	6		
Kimberley.....		2.00	10		
Pietermaritzburg.....		6.57	16		
Delagoa Bay.....	2,230,000	7.76	15		

STREET AND ELECTRIC RAILWAYS

GENERAL TABLES

(325)

STREET AND ELECTRIC RAILWAYS.

EXPLANATION OF GENERAL TABLES 183 TO 187.

TABLE 183.

[This table corresponds with Table 93 of the report on street and electric railways, 1902.]

State and location.—The states and territories are arranged alphabetically, and for each state and territory the companies are arranged alphabetically according to the city or the principal city in which they operated. This brings together the statistics for most of the companies operating in the same locality. The principal cities and towns touched, and the terminal points, are given for each company, in order to indicate the extent of the territory covered by the railway. In the majority of cases the principal city contains the general or operating office.

Interstate railways were assigned, as a rule, to the state in which the principal property or operating office was located, but in some cases this arrangement was modified, in order that the statistics for 1907 might be comparable with those for the census of 1902. If a company is assigned to a state other than that to which it is generally credited, a cross reference is given. For example, the Augusta and Aiken Railway Company appears as No. 2 under South Carolina, with a cross reference under Augusta, Ga.

The marginal number given each operating company in this table is employed in the subsequent general and supplementary tables.

Name of company.—The name of each nonoperating lessor company is indented under that of the lessee company which operated the line owned by the lessor company. Each company of this class is indicated by the word "Lessor" after the name and is given the marginal number of the lessee company with a letter suffix. Nonoperating lessor companies are not shown in other general tables.

Several companies were reported as operated by receivers during the census year, and the fact has been indicated by footnotes when disclosed by the census returns.

The names of the few railway companies that were idle during the census year are given in this table, but no statistical data are shown for them. Companies whose properties were under construction and not in operation during the census year do not appear in this or subsequent tables.¹

¹ For statistics of electric railways under construction during 1907, see p. 27.

Period covered by report.—For some companies the period of normal operation is confined to the summer or tourist season. In such cases the fact that the statistics do not cover an entire year is explained in a footnote.

Miles of track owned.—The miles of track reported as "Owned" agrees with the mileage shown in Table 184 as "total owned and leased," since in Table 183 all track leased by an operating company from steam railroads, bridge companies, etc., appears as "Owned" in combination with the track owned by the lessee company, while in Table 184 all track owned by lessor companies, steam railroads, bridge companies, etc., appears as "leased."

The state total of "Owned" track represents the sum of the trackage for companies credited to the state. When the miles of track lying within a state differ from the mileage given as "Owned," the mileage within the state is shown in a footnote. In the case of each company with trackage in another state than that to which the company is accredited, a footnote shows the distribution of such trackage by states.

Miles of track operated.—The miles of track shown as "Operated" agrees with the total mileage shown in Table 184 as "Total owned and leased" and as "Operated under trackage rights." All track reported by each of two or more companies using it jointly involves a duplication if the miles of track operated by the various companies is summarized by state or other group totals. Therefore no state total is indicated for the column of "operated" trackage. When the total number of miles of track operated in a state differs from the owned mileage within a state, the mileage operated is stated in a footnote reference for the state total in the "owned" column.

No duplication of trackage is involved when cars of one company were operated over the tracks of another company under contract agreement; if in such a case, however, there was a great discrepancy between the length of track reported as owned and the distance between the cities in which cars were operated (given in the column "State and location"), explanation is made in the form of a note which is appended to the total number of miles of track operated and reads as follows: "Cars operated by another company at terminus (or termini) of road owned."

Capital stock and funded debt.—If the amount of capitalization shown does not represent the entire issue

of a company, attention is directed to the fact by a footnote. The inclusion of capitalization of consolidated or subsidiary companies, and dividends on only a portion of the issue, are explained in a similar manner. Also, cash investment, or floating debt shown in lieu of stock or bonds, has been noted.

Total capitalization outstanding.—The amounts shown in this column represent the total outstanding capital stock and funded debt reported by the operating and lessor companies. In many cases the capitalization covers property or investments other than those pertaining to the railways, while in other cases the capitalization does not represent the entire obligation on account of the exclusion from the table of floating or other debt. These conditions, when important, are explained by appropriate footnotes.

Capitalization per mile of track owned.—The figures shown under this head were obtained by dividing the total outstanding capitalization for each company by the number of miles of track owned by the company. In the case of totals for the United States and for the states and territories, unless otherwise noted, the permanent or other investments were deducted from the capitalization in order that the result might be, as nearly as possible, the net capitalization chargeable to railway trackage.

On account of the intimate relation between operating and lessor companies, the capitalization per mile of track is given for operating and lessor companies combined.

TABLE 184.

[This table corresponds with Table 94 of the report on street and electric railways, 1902.]

Track.—The total miles of track is represented by four different groupings, the total for each group agreeing with the amount shown in the column of "Total owned and leased." The groups are as follows:

- (1) Main track—
 - First.
 - Second (including third, fourth, etc.).
 - Sidings and turn-outs.
- (2) Overhead trolley.
 - Other mechanical traction.
 - Animal.
- (3) Surface.
 - Elevated.
 - Subways and tunnels.
- (4) Owned.
 - Leased.

The column of "Operated under trackage rights" represents duplicated track and does not enter into the summarization of the total mileage of owned and leased track.

The length of track "Constructed and opened for operation during the year" represents trackage added by operating companies and trackage of companies commencing operations during the census year.

The distinction of track "Within city limits" and track "Outside city limits" was not practicable for

many companies in Connecticut and Massachusetts, on account of the blending of municipal and township lines; consequently the total for such track for the United States is less than the total owned and leased trackage by the trackage of these two states. The schedule of inquiry directed that track lying within the boundaries of any city, town, or village not rural in character should be classified as "Within city limits."

Electric-line construction.—The total overhead trolley construction approximately equals the length of road (first main track) of the electric railways, since the span-wire or center-pole construction covers all tracks, whether single or multiple. With span-wire construction the number of poles on one side only are given for "Number of poles to the mile."

TABLE 185.

[This table corresponds with Table 95 of the report on street and electric railways, 1902.]

Cars.—The "Aggregate" number of cars is divided into the following classes: "Passenger and express," "Express, freight, and mail;" "Work and miscellaneous;" "Snowplows;" and "Sweepers and sprinklers." The aggregate is further divided into "Motor cars" and "Trailers."

Cars used for more than one kind of service were classified according to the principal service and counted but once. The cars shown as "Express, freight, and mail" were devoted solely to one or more of these several uses.

Electric and gasoline motor cars and cable grip cars make up the class of "Motor cars;" when the cars are other than electric-motor cars the fact is indicated by footnotes. All other cars, including horse cars and inclined-cable cars, are included as "Trailers."

Motor equipments for motor cars.—The "Total," composed of one, two, three, and four motor equipments, is less than the total number of "Motor cars," for the reason that motor equipments are commonly interchanged between open and closed cars. One large company reported a great many more motor equipments than motor cars, a considerable number of motors being out of service for repairs; and one smaller company reported a few more motor equipments than motor cars.

Fenders.—Cars equipped with pilots and wheel guards are included with cars equipped with fenders, and footnotes are attached to show when such apparatus was reported.

The number of cars shown as equipped with fenders should not be construed as the number of separate fender attachments, but rather the number of cars so equipped that fenders can be used when the car is in service.

Brakes.—All cars, as a rule, are equipped with hand brakes, even when air or other mechanical kinds are principally used, but all companies did not report

hand brakes for all cars. If a car had more than one variety of brake, it was given credit for each kind.

Car houses.—No car houses were reported for a considerable number of companies. In case a company had only one structure—a combination power and car house—it was credited with a power house and not with a car house. Among the smaller companies it is quite common for one company to rent car-housing space from another.

TABLE 186.

[This table corresponds with Table 96 of the report on street and electric railways, 1902.]

The absence of data called for by this table is explained by footnotes.

The footnote "Current purchased" in lieu of output of station when primary or electrical generators are reported, indicates that such equipment was idle during the period covered by the report. When current was purchased to supplement the output generated by a company, the fact has been shown by a footnote reference for the output of station reported.

The classification according to size is shown for steam turbines, gas engines, and water wheels in Supplementary Table 1, and for alternating-current dynamos in Supplementary Table 2.

The auxiliary electric equipment in main power plants is shown in Supplementary Table 3, and the substation equipment in Supplementary Table 4. Page references are given in Table 186 for the companies which reported the equipment called for by these two supplementary tables.

The sale of any part (large or small) of the output of station is indicated by the word "Yes" in the last column of the table. When such indication is given, or a footnote for the output shows that "current is

also purchased," the total kilowatt hours, for the year, can not fairly be compared with the car mileage or other railway statistics.

TABLE 187.

[This table corresponds with Table 97 of the report on street and electric railways, 1902.]

The location of the company, character of service, and kind of system, as indicated by Tables 183 and 184, should be taken into account when the statistics of this table are considered; especially the averages of fare passengers per mile of track, per car mile, and per car hour.

If a report covers less than twelve months, the period of operation is indicated by footnotes for number of passengers, car mileage, and car hours.

Transfer passengers.—Transfer passengers, as a rule, represent a duplication of that number of fare passengers. Transfer passengers, in some cases, pay an additional charge for the privilege of securing the transfers, but the statistics do not show the number of such passengers.

Fare passengers per mile of track.—The number of fare passengers per mile of track is the result obtained by dividing the number of fare passengers by the number of miles of track operated. The latter factor is shown in Table 183.

Fare passengers per car mile.—This result is found by dividing the number of fare passengers by the passenger-car mileage. Both factors are shown in the table.

Fare passengers per car hour.—This result is found by dividing the number of fare passengers by the number of passenger-car hours. Both factors are shown in the table.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.		
			From—	To—	Owned.	Operated.	Total par value.		
							Authorized.	Outstanding.	
UNITED STATES.					34,403.56		\$2,508,054.33 ¹		\$2,097,708,850
ALABAMA.									
Total for state.					201.66		14,325,000		12,980,900
1	Anniston, Oxford.	Anniston Electric and Gas Co.	Jan. 1, 1907	Dec. 31, 1907	11.00	11.00	250,000	250,000	
2	Birmingham, Bessemer, Pratt City, East Lake.	Birmingham Railway, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	133.00	133.00	7,000,000	7,000,000	
3	Gadsden, Alabama City, Attalla.	Alabama City, Gadsden and Attalla Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.00	8.00	500,000	330,000	
4	Huntsville.	Huntsville Railway, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	4.62	4.62	150,000	150,000	
5	Mobile and vicinity.	Mobile Light and R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	58.19	58.19	2,250,000	2,250,000	
6	Montgomery.	Montgomery Traction Co.	Jan. 1, 1907	Dec. 31, 1907	37.95	37.95	2,000,000	2,000,000	
7	New Decatur, Decatur.	North Alabama Traction Co.	Jan. 1, 1907	Dec. 31, 1907	7.24	7.24	150,000	150,000	
8	Selma.	Selma Street and Suburban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.16	8.16	125,000	125,000	
9	Sheffield, Florence, Tusculum.	Sheffield Co.	Jan. 1, 1907	Dec. 31, 1907	12.50	12.50	700,000	700,000	
10	Tuscaloosa.	Birmingham and Gulf Railway and Navigation Co. (Tuscaloosa Belt Ry.).	Jan. 1, 1907	Dec. 31, 1907	11.00	11.00	200,000	25,900	
ARIZONA.									
Total for territory.					30.75		2,050,000		1,395,400
1	Douglas, Calumet.	Douglas Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	10.00	10.00	50,000	50,000	
2	Phoenix.	Phoenix Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	14.00	14.00	500,000	500,000	
3	Prescott.	Prescott and Mt. Union Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	2.25	2.25	1,000,000	353,000	
4	Tucson.	Tucson Rapid Transit Co.	Jan. 1, 1907	Dec. 31, 1907	4.50	4.50	500,000	500,000	
ARKANSAS.									
Total for state.					87.39		4,800,000		4,945,600
1	Eureka Springs.	Citizens Electric Co.	Jan. 1, 1907	Dec. 31, 1907	3.00	3.00	50,000	50,000	
2	Fort Smith and vicinity.	Fort Smith Light and Traction Co.	Jan. 1, 1907	Dec. 31, 1907	17.46	17.46	1,400,000	1,400,000	
3	Hot Springs.	Hot Springs Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	13.06	13.06	500,000	500,000	
4	Little Rock and vicinity.	Little Rock Railway and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	32.15	32.15	2,250,000	2,250,000	
5	Pine Bluff.	Citizens Light and Transit Co.	Jan. 1, 1907	Dec. 31, 1907	8.75	8.75	200,000	200,000	
6	Sulphur Rock.	Sulphur Rock Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	.98	.98	4,000	3,800	
7	Texarkana.	Texarkana Gas and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	9.45	9.45	200,000	200,000	
8	Walnut Ridge, Hoxie.	Walnut Ridge and Hoxie Light, Power and Transit Co.	Jan. 1, 1907	Dec. 31, 1907	2.54	2.54	65,000	41,800	
CALIFORNIA.									
Total for state.					2,013.49		178,348,000		147,734,600
1	Avalon, Santa Catalina Island.	Santa Catalina Island Co. (inclined plane).	Oct. 1, 1906	Sept. 30, 1907	.18	.18	25,000	25,000	
2	Bakersfield, Kern.	Power, Transit and Light Co.	July 1, 1906	June 30, 1907	7.80	7.80	250,000	250,000	
3	Chico, Oroville, Yuba City, Marysville, Sacramento.	Northern Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	112.54	112.54	25,000,000	5,000,000	
4	Coronado.	Coronado R. R. Co. (electric division).	Jan. 1, 1907	Dec. 31, 1907	2.99	2.99	75,000	75,000	
5	Eureka.	Humboldt Transit Co.	Jan. 1, 1907	Dec. 31, 1907	13.04	13.04	1,000,000	500,000	
6	Fresno.	Fresno Traction Co.	June 1, 1906	May 31, 1907	1.25	11.93	5,000,000	5,000,000	
6a	do.	Fresno City Ry. Co. (trolley).	June 1, 1906	May 31, 1907	10.68		500,000	200,000	
7	Grass Valley, Nevada City.	Nevada County Traction Co.	May 1, 1906	Apr. 30, 1907	5.50	5.50	100,000	100,000	
8	Los Angeles.	Los Angeles Electric Incline Ry.	Jan. 1, 1907	Dec. 31, 1907	.14	.14	60,000	60,000	
9	do.	Observation Tower Co. (inclined plane).	Jan. 1, 1907	Dec. 31, 1907	.06	.06	25,000	25,000	
10	Los Angeles and suburbs.	Los Angeles Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	212.93	212.93	5,000,000	5,000,000	
11	Los Angeles, Pasadena, Altadena, Monrovia, Glendora, Covina, Whittier, Santa Ana, Orange, Long Beach, San Pedro.	Pacific Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	201.92	454.26	20,000,000	20,000,000	
12	Los Angeles, Sherman, Santa Monica, Venice, Inglewood, Redondo.	Los Angeles Pacific Co.	Jan. 1, 1907	Dec. 31, 1907	167.57	172.93	15,000,000	15,000,000	
13	Los Angeles, San Pedro, Glendale.	Los Angeles Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	339.11	86.77	10,000,000	10,000,000	
14	Monterey, Pacific Grove, Del Monte.	Monterey and Pacific Grove Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.50	6.50	750,000	750,000	
15	Napa, Vallejo.	Vallejo, Benicia and Napa Valley R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	16.64	16.64	500,000	500,000	
16	Oakland, Berkeley, Alameda, Hayward.	Oakland Traction Co.	Jan. 1, 1907	Dec. 31, 1907	160.10	160.10	17,925,000	17,925,000	
17	Oakland, Berkeley.	San Francisco, Oakland and San Jose Consolidated Ry.	Jan. 1, 1907	Dec. 31, 1907	22.32	22.32	5,000,000	5,000,000	
18	Ontario, Upland.	Ontario and San Antonio Freights R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	8.20	8.20	150,000	150,000	
19	Palo Alto.	Santa Clara Interurban R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	2.65	2.65	5,000,000	150,000	
20	Paso Robles.	El Paso de Robles Street Car Co.	Jan. 1, 1907	Dec. 31, 1907	2.50	2.50	25,000	25,000	

¹ Includes 282.39 miles leased from steam railroads, bridge companies, etc., 22.05 miles not operated and 27.32 miles lying outside of the United States. Total operated in the United States, 34,453.99 miles.

² Exclusive of 277.97 miles of track leased from steam railroads, bridge companies, etc., and 292.95 miles of track of six electric divisions of steam railroads for which no capital was reported, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$7,466,437.

³ Includes 0.50 mile leased from steam railroad, but exclusive of 2.20 miles in state owned by an outside company. Total operated in state, 283.89 miles.

⁴ Exclusive of 0.50 mile of track leased from steam railroad, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$2,666,453.

⁵ Includes electric-light plant and permanent or other investments. This company has also a floating debt.

⁶ Includes electric-light plant and permanent or other investments.

⁷ Includes electric-light plant.

⁸ Includes permanent or other investments.

⁹ Includes 0.50 mile leased from steam railroad.

¹⁰ Stock not all outstanding throughout year.

¹¹ This company has also a floating debt.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of interest, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$2,028,885.73 ¹	\$1,776,920,075		\$44,960,796	\$409,168,600	\$320,788,780		\$9,524,478	\$2,322,730,837	\$1,677,093,240		\$3,774,772,096	\$100,496	
9,825,000	9,480,900		40,868	3,500,000	3,500,000		210,000	16,623,000	13,181,667		28,162,667	\$87,457	
250,000	250,000			3,500,000	3,500,000	6	210,000	300,000	300,000	5	\$350,000	50,000	1
3,500,000	3,500,000							11,250,000	10,151,067	4½	\$17,151,067	128,980	2
500,000	330,000							300,000	250,000	5	\$580,000	72,500	3
150,000	150,000							150,000	150,000	6	\$300,000	64,935	4
2,250,000	2,250,000							2,250,000	2,065,000	5,6	\$4,315,000	74,154	5
2,000,000	2,000,000							2,000,000	1,800,000	5,6	\$3,800,000	102,503	6
150,000	150,000							150,000	150,000	5	\$300,000	41,630	7
125,000	125,000							125,000	125,000	5	\$250,000	30,637	8
700,000	700,000	6	\$40,868 ²								\$700,000	58,333	9
200,000	25,900							100,000	100,000	5	\$125,900	11,445	10
2,050,000	1,383,400							400,000	214,000		1,508,000	51,967	
50,000	50,000										\$50,000	5,000	1
500,000	500,000							100,000	100,000	5	\$600,000	42,857	2
1,000,000	333,400							300,000	114,000	6	\$333,400	148,178	3
500,000	500,000										\$614,800	136,578	4
3,300,000	3,345,600		60,228	1,500,000	1,500,000		45,000	5,358,000	4,453,000		9,298,600	\$90,924	
50,000	50,000							175,000	175,000	5	\$225,000	75,000	1
950,000	950,000			650,000	650,000			1,500,000	1,438,000	5	\$3,038,000	173,998	2
300,000	300,000							500,000	350,000	5	\$850,000	65,084	3
1,500,000	1,500,000	4	60,000	750,000	750,000	6	45,000	2,000,000	2,000,000	5	\$4,250,000	132,193	4
200,000	200,000							150,000	18,000	5	\$218,000	24,914	5
4,000	3,800	6	228								\$3,800	3,876	6
100,000	100,000			100,000	100,000			1,000,000	641,000	5	\$1,641,000	67,831	7
65,000	41,800							31,000	31,000	6	\$72,800	28,661	8
136,298,000	114,247,100		749,800	42,050,000	33,487,500		423,000	162,015,000	96,812,400		244,547,000	\$114,661	
¹¹ 5,000	¹² 5,000							¹³ 12,000	¹⁴ 12,000	5	¹⁵ 17,000	94,444	1
¹⁶ 250,000	¹⁷ 250,000							¹⁸ 250,000	¹⁹ 125,000	5	²⁰ 375,000	48,077	2
15,000,000	(²¹)			10,000,000	5,000,000			25,000,000	1,995,000	5	²² 6,805,000	61,267	3
²³ 75,000	²⁴ 75,000										²⁵ 75,000	25,064	4
1,000,000	500,000							1,000,000	203,000	5	703,000	53,911	5
5,000,000	5,000,000							5,000,000	58,000	5	²⁶ 5,058,000	477,703	6
500,000	500,000							150,000	141,000	6	641,000	36,394	7
100,000	100,000							100,000	100,000	5	\$200,000	514,286	8
60,000	60,000	12½	7,500					12,000	12,000	6	23,400	556,667	9
25,000	25,000							10,000	8,400	6	²⁷ 10,000,000	46,994	10
5,000,000	5,000,000							5,000,000	5,000,000	5,6	²⁸ 29,994,000	148,544	11
20,000,000	20,000,000							20,000,000	9,994,000				
15,000,000	15,000,000							12,500,000	10,650,000	5	²⁹ 25,660,000	153,108	12
10,000,000	10,000,000							10,000,000	5,630,000	5,6	³⁰ 15,630,000	46,091	13
750,000	750,000							800,000	500,000	5	³¹ 1,300,000	200,154	14
500,000	500,000							500,000	500,000	5	1,000,000	60,096	15
10,875,000	10,875,000	4½	522,000	7,050,000	7,050,000	6	423,000	12,000,000	9,465,000	5,6	³² 27,390,000	164,901	16
5,000,000	5,000,000	2½	125,000					4,500,000	4,500,000	5	³³ 9,500,000	425,427	17
150,000	150,000										³⁴ 150,000	18,293	18
5,000,000	³⁵ 150,000										³⁶ 150,000	56,604	19
³⁷ 8,000	³⁸ 8,000										³⁹ 8,000	3,300	20

¹ Changed from animal power and was still under construction.² Includes 5.17 miles lying outside of state. Total operated in state, 82.22 miles.³ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,232,780.⁴ Includes electric-light plant. This company has also a floating debt.⁵ Includes 5.17 miles in Texas.⁶ Includes permanent or other investments. This company has also a floating debt.⁷ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$13,637,939.⁸ Amount apportioned to railway department.⁹ Not reported.¹⁰ Amount apportioned to electric division.¹¹ Includes 252.34 miles leased to and operated by Pacific Electric Ry. Co.¹² Road was still under construction, stock not fully issued.¹³ Cash investment.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
CALIFORNIA—Continued.								
21	Petaluma, Forestville, Sebastopol, Santa Rosa.	Petaluma and Santa Rosa Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	36.56	36.56	\$1,000,000	\$1,000,000
22	Redondo Beach, Los Angeles.	Los Angeles and Redondo Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	84.33	84.33	500,000	500,000
23	Richmond and suburbs, Berkeley.	East Shore and Suburban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	15.00	15.00	1,000,000	765,000
24	Riverside.	Riverside and Arlington Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	12.41	12.41	200,000	81,200
25	Sacramento and suburbs.	Sacramento Electric, Gas and Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	30.22	30.22	2,500,000	1,858,400
26	San Bernardino, Redlands, Colton, Highland.	San Bernardino Valley Traction Co.	Jan. 1, 1907	Dec. 31, 1907	42.50	42.50	1,500,000	1,500,000
27	San Diego.	San Diego Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	35.14	35.14	500,000	500,000
28	do.	South Park and East Side Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.59	3.59	100,000	93,800
29	San Francisco.	Geary Street, Park and Ocean R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	6.93	6.93	1,000,000	1,000,000
30	do.	California Street Cable R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	10.89	10.89	1,000,000	1,000,000
31	do.	Presidio and Ferries R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	8.01	9.01	1,000,000	1,000,000
32	San Francisco, San Mateo.	United Railroads of San Francisco.	Jan. 1, 1907	Dec. 31, 1907	263.32	263.32	45,000,000	41,437,500
33	San Jose and suburbs.	San Jose Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	15.36	15.36	500,000	500,000
34	San Jose, Santa Clara, East San Jose.	San Jose and Santa Clara County R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	35.19	35.19	5,000,000	5,000,000
35	San Jose, Los Gatos, Saratoga, Cupertino.	San Jose-Los Gatos Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	40.09	40.09	2,000,000	2,000,000
36	Santa Barbara.	Santa Barbara Consolidated R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	7.50	7.50	250,000	1,000
37	Santa Cruz, Capitola.	Union Traction Co.	Jan. 1, 1907	Dec. 31, 1907	14.78	14.78	750,000	750,000
38	South San Francisco and vicinity.	South San Francisco Railroad and Power Co.	Jan. 1, 1907	Dec. 31, 1907	4.40	4.40	100,000	13,000
39	Stockton.	Stockton Electric R. R. Co.	Dec. 1, 1906	Nov. 30, 1907	13.00	13.00	500,000	161,200
40	Stockton, Lodi.	Central California Traction Co.	Jan. 1, 1907	Dec. 31, 1907	27.38	27.38	2,500,000	2,500,000
41	Watsonville and vicinity.	Pacific Railroad and Steamship Co.	Jan. 1, 1907	June 30, 1907 ⁹	5.33	5.33	100,000	75,000
COLORADO.								
Total for state.					317.37		34,790,600	17,998,500
1	Boulder.	Boulder Electric Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	5.30	5.30	250,000	250,000
2	Colorado Springs, Colorado City, Manitou, Roswell.	Colorado Springs and Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	39.64	39.64	1,500,000	1,500,000
3	Cripple Creek, Victor, Goldfield.	Colorado Springs and Cripple Creek District Ry. Co. (electric division).	July 1, 1906	June 30, 1907	18.42	18.42	* 560,000	* 560,000
4	Denver.	Denver City Tramway Co. (including Denver Tramway Power Co.)	Jan. 1, 1907	Dec. 31, 1907	* 174.48	172.30	20,000,000	5,000,000
5	Denver, Barnum.	Denver and Inter-Mountain Ry. Co. (electric division).	Jan. 1, 1907	Dec. 31, 1907	5.50	5.50	* 305,600	* 157,200
6	Denver, Golden.	Denver and Northwestern Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	24.04	26.22	6,000,000	6,000,000
7	Durango, Animas.	Durango Railway and Realty Co.	Aug. 1, 1906	July 31, 1907	2.39	2.39	250,000	219,100
8	Englewood, Littleton.	Denver and South Platte Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	4.35	4.35	1,000,000	225,000
9	Manitou.	Manitou Electric Railway and Casino Co.	Nov. 1, 1906	Oct. 31, 1907	.73	.73	125,000	125,000
10	Pueblo.	Pueblo and Suburban Traction and Lighting Co.	Jan. 1, 1907	Dec. 31, 1907	29.27	29.27	4,500,000	3,662,200
11	Trinidad, Starkville, Sopris.	Trinidad Electric R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	13.05	13.05	300,000	300,000
CONNECTICUT.								
Total for state.					781.15		21,707,100	20,371,900
1	Bristol, Plainville, Terryville.	Bristol and Plainville Tramway Co.	July 1, 1906	June 30, 1907	13.74	13.74	1,000,000	250,000
2	Danbury, Bethel.	Danbury and Bethel Street Ry. Co.	July 1, 1906	June 30, 1907	14.88	14.88	325,000	320,000
3	Enfield, East Windsor, Somers, Windsor, Windsor Locks, Suffield, Rockville.	Hartford and Springfield Street Ry. Co.	July 1, 1906	June 30, 1907	48.10	48.10	1,000,000	785,000
4	Groton, Stonington.	Groton and Stonington Street Ry. Co.	July 1, 1906	June 30, 1907	20.66	20.66	600,000	600,000
5	Hartford, Farmington, Unionville.	Farmington Street Ry. Co.	July 1, 1906	June 30, 1907	10.80	15.10	189,000	189,000
6	New Haven, Branford, Bridgeport, Derby, Enfield, Farmington, Glastonbury, Greenwich, Hamden, Hartford, Huntington, Manchester, Meriden, Middletown, Milford, Naugatuck, New Britain, New London, Norwich, Orange, Plainfield, Putnam, Rockville, Seymour, Southington, South Norwalk, Sprague, Stamford, Suffield, Thompson, Torrington, Wallingford, Waterbury, Waterford, Westport, Wethersfield, Winchester, Windsor.	New York, New Haven and Hartford R. R. Co. (street railway department) and The Connecticut Co. ¹⁰	July 1, 1906	June 30, 1907	* 411.00	422.95	* 250,000	* 250,000
6a		Connecticut Railway and Lighting Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	209.59		17,120,100	17,120,100
6b		West Shore Ry. Co. (lessor)	July 1, 1906	June 30, 1907	7.42		200,000	80,000
6c		South Manchester Light, Power and Tramway Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	80		100,000	10,000

¹ Includes permanent or other investments.² Includes permanent or other investments. This company has also a floating debt.³ Includes temporary electric-light plant, and permanent or other investments. This company has also a floating debt.⁴ This company has also a floating debt.⁵ Operated only on Sundays and holidays from January 1 to June 30 (about thirty days in all).⁶ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$11,541,272.⁷ Includes electric-light plant.⁸ Amount apportioned to electric division.⁹ Includes 2.18 miles leased to Denver and Northwestern Ry. Co.¹⁰ Road was still under construction.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$1,000,000	\$1,000,000							\$1,000,000	\$915,000	5,6	\$1,915,000	\$32,380	21
500,000	500,000							500,000	500,000	5	\$1,000,000	11,858	22
1,000,000	785,000	2	\$15,300					750,000	632,000	5	1,097,000	73,133	23
300,000	61,200							200,000	110,000	4	191,200	15,407	24
2,500,000	1,858,400							2,500,000	2,475,000	5	\$4,333,400	143,305	25
1,500,000	1,500,000							1,000,000	923,000	5	\$2,423,000	57,012	26
500,000	500,000										500,000	14,229	27
100,000	93,800										93,800	26,348	28
1,000,000	1,000,000							1,000,000	671,000	5	\$1,671,000	241,120	29
1,000,000	1,000,000	8	80,000					1,000,000	900,000	5	\$1,900,000	174,954	30
1,000,000	1,000,000							150,000	43,000	6	1,043,000	115,790	31
20,000,000	20,000,000			\$25,000,000	\$21,437,500			49,896,000	37,496,000	4,5,6	\$78,933,500	209,793	32
500,000	500,000							1,000,000	310,000	5	810,000	52,734	33
5,000,000	5,000,000							1,500,000	1,500,000	4,6	\$3,000,000	184,712	34
2,000,000	2,000,000							2,000,000	500,000	5	\$2,500,000	62,300	35
250,000	1,000							250,000	160,000	5,6	410,000	21,467	36
750,000	750,000							750,000	670,000	5	\$1,420,000	96,076	37
100,000	13,500										13,500	3,068	38
300,000	161,200							115,000	115,000	6	\$276,200	21,240	39
2,500,000	2,500,000							1,500,000	278,000	5	\$2,778,000	101,461	40
100,000	75,000							100,000	25,000	5	\$125,000	18,702	41
33,065,000	17,112,300		300,000	1,724,000	886,200		67,124	34,975,000	19,450,000		37,445,500	\$60,686	
250,000	250,000							100,000	100,000	5	\$100,000	77,356	1
1,000,000	1,000,000			500,000	500,000			1,500,000	1,500,000	5	\$3,000,000	75,201	2
\$336,000	\$236,000			\$224,000	\$224,000			\$1,000,000	\$983,000	5	\$1,543,000	83,708	3
20,000,000	5,000,000	6	300,000					21,500,000	7,250,000	5,6	\$12,250,000	70,209	4
\$305,000	\$137,200										\$137,200	29,582	5
6,000,000	6,000,000							6,000,000	6,000,000	5	\$12,000,000	489,168	6
250,000	219,100										\$219,100	91,474	7
1,000,000	225,000							1,000,000	75,000	6	\$1,075,000	58,985	8
125,000	125,000							15,000	15,000	6	140,000	191,781	9
3,500,000	3,500,000			1,000,000	102,200	6	\$7,124	3,500,000	3,167,000	5	\$3,629,200	233,317	10
300,000	200,000							300,000	200,000	5	500,000	45,977	11
12,544,200	11,506,200		121,257	9,102,900	8,965,700		291,990	40,114,091	47,081,091		67,432,991	\$84,852	
1,000,000	250,000	6	15,000					600,000	380,000	4,5	\$980,000	42,940	1
323,000	320,000	4	12,900					300,000	620,000	5	\$920,000	41,067	2
500,000	500,000			500,000	285,000	6	\$14,856	1,200,000	963,000	5	\$1,740,000	39,299	3
400,000	400,000			200,000	200,000	7,5	15,000	375,000	375,000	5	975,000	47,193	4
189,000	189,000							30,000	30,000	5	219,000	20,276	5
250,000	250,000							\$30,429,091	\$30,629,091		\$30,879,091		6
													97,939
8,977,200	8,977,200	1	89,457	8,142,900	8,142,900	1,4	282,113	15,000,000	13,499,000	4,5,6	\$30,896,100		6a
200,000	80,000	5	4,000					20,000	30,000	5	110,000		6b
100,000	10,000										10,000		6c

¹ Stock not all outstanding the entire year.² Includes electric-light plant and permanent or other investments. This company has also a floating debt.³ Includes 2 miles lying outside of state, but exclusive of 2.00 miles in state owned by an outside company. Total operated in state, 761.18 miles.⁴ Exclusive of 8.87 miles of track for which no capital was reported, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,923,596.⁵ Combined report of New York, New Haven and Hartford R. R. Co. (street-railway department) for eleven months and The Connecticut Co. for one month. The Connecticut Co. owns no track, but operated under contract the electric-railway properties owned and leased by the New York, New Haven and Hartford R. R. Co.⁶ Includes 5.86 miles leased to New York and Stamford Ry. Co.⁷ Capital stock of The Connecticut Co.⁸ Value of electric-railway properties owned by New York, New Haven and Hartford R. R. Co.

STREET AND ELECTRIC RAILWAYS.

TABLE 183. NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
CONNECTICUT—Continued.								
7	New London, East Lyme.....	New London and East Lyme Street Ry. Co.	July 1, 1906	June 30, 1907	11.14	11.14	\$225,000	\$150,000
8	Norwich, North Stonington; Westerly (R. I.).....	Norwich and Westerly Ry. Co.	Nov. 12, 1906	June 30, 1907	24.15	24.15	700,000	617,800
9	Stamford, New Canaan.....	New York, New Haven and Hartford R. R. Co. (New Canaan branch).	July 1, 1906	June 30, 1907	8.87	8.87	(¹)	(¹)
DELAWARE.								
	Total for state.....				95.03		2,902,000	2,901,995
1	Middletown, Odessa.....	Odessa and Middletown Ry. Co.	June 1, 1907	Aug. 31, 1907	3.99	3.99		
2	Wilmington and vicinity.....	Peoples Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	31.38	33.38	1,500,000	1,500,000
3	do.....	Wilmington City Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	33.50	45.11	520,000	520,000
3a	do.....	Front and Union Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	6.93		300,000	300,000
3b	do.....	Gordon Heights Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	1.71		52,000	52,000
3c	do.....	Wilmington and Edgemoor Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.97		200,000	200,000
4	Wilmington, New Castle, Delaware City.	Wilmington, New Castle and Southern Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	13.45	13.45	330,000	329,995
DISTRICT OF COLUMBIA.								
	Total for district.....				176.03		31,058,500	31,058,500
1	Washington.....	Anacostia and Potomac River R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	20.72	25.72	2,000,000	2,000,000
2	do.....	Brightwood Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	12.11	12.11	108,500	108,500
3	do.....	Georgetown and Tennallytown Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.00	8.00	200,000	200,000
4	Washington; Chevy Chase (Md.)	Capital Traction Co.	Jan. 1, 1907	Dec. 31, 1907	44.27	44.94	12,000,000	12,000,000
5	Washington and suburbs.....	Washington Railway and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	52.71	57.12	15,000,000	15,000,000
6	Washington; Hyattsville, Berwyn (Md.)	City and Suburban Railway of Washington.	Jan. 1, 1907	Dec. 31, 1907	33.58	34.35	1,750,000	1,750,000
FLORIDA.								
	Total for state.....				118.26		5,761,000	4,834,800
1	Fernandina, Amelia Beach.....	Amelia Beach Co.	Jan. 1, 1907	Dec. 31, 1907 ¹	2.20	2.20	50,000	40,000
2	Fort Meade.....	Fort Meade Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.13	1.13	6,000	5,750
3	Jacksonville.....	Jacksonville Electric Co.	Jan. 1, 1907	Dec. 31, 1907	22.25	22.25	1,100,000	1,000,000
4	do.....	North Jacksonville Street Railway, Town and Improvement Co.	Jan. 1, 1907	Dec. 31, 1907	6.50	6.50	150,000	49,110
5	Key West.....	Key West Electric Co.	Jan. 1, 1907	Dec. 31, 1907	4.95	4.95	730,000	665,000
6	Pensacola, Warrington, Fort Harrison.....	Pensacola Electric Co.	Jan. 1, 1907	Dec. 31, 1907	20.39	20.39	1,300,000	1,100,000
7	St. Augustine, South Beach.....	St. Johns Light and Power Co.	Aug. 1, 1907	Dec. 31, 1907	7.06	7.06	300,000	160,000
8	St. Petersburg, Veteran.....	St. Petersburg and Gulf Ry.	Jan. 1, 1907	Dec. 31, 1907	9.25	9.25	25,000	25,000
9	Tampa.....	Tampa and Sulphur Springs Traction Co.	May 12, 1907	Dec. 31, 1907	8.21	8.21	400,000	100,000
10	Tampa, West Tampa, Port Tampa.	Tampa Electric Co.	Jan. 1, 1907	Dec. 31, 1907	35.32	35.32	1,700,000	1,700,000
GEORGIA.								
	Total for state.....				254.18		18,117,100	18,110,400
1	Athens.....	Athens Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	0.55	0.55	275,000	275,000
2	Atlanta, Decatur, College Park.....	Georgia Railway and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	162.10	162.10	10,914,800	10,914,800
3	Atlanta, Smyrna, Marietta, Augusta.....	Atlanta Northern Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	16.00	16.01	100,000	100,000
4	Augusta.....	Augusta and Alken Ry. Co. (See South Carolina.)						
5	Augusta, Summerville.....	Augusta Railway and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	31.90	31.90	1,000,000	1,000,000
6	Columbus; Girard, Phoenix (Ala.).....	Columbus R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	26.48	21.48	250,000	250,000
7	Covington, Oxford.....	Covington and Oxford Street Ry. Co.	Feb. 1, 1907	Jan. 31, 1908	2.25	2.25	20,000	13,600
8	Gainesville, New Holland.....	Gainesville Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	0.01	0.01	300,000	300,000
9	Macon and vicinity.....	Macon Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	32.67	32.67	1,200,000	1,200,000
10	Rome, Lindale.....	Rome Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	8.80	8.80	500,000	500,000
11	Savannah, Thunderbolt, Montgomery.....	Savannah Electric Co.	Jan. 1, 1907	Dec. 31, 1907	57.19	57.19	3,500,000	3,500,000
12	Valdosta.....	Valdosta Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.56	3.56	50,000	50,000
13	Washington.....	Washington Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	.65	.65	7,500	7,200
IDAHO.								
	Total for state.....				44.24		5,900,000	900,000
1	Boise.....	Boise R. R. Co. (Ltd.).....	Jan. 1, 1907	Dec. 31, 1907	9.74	9.74	900,000	900,000
2	Boise, Caldwell.....	Boise and Interurban Ry. Co. (Ltd.).....	Aug. 1, 1907	Dec. 31, 1907	34.50	34.50	5,000,000	(²)

¹ This company has also a floating debt.² Includes 2 miles in Rhode Island.³ Includes permanent or other investments. This company has also a floating debt.⁴ Capitalization included in that of steam railroad.⁵ Exclusive of 9 miles in state owned by an outside company. Total operated in state, 104.93 miles.⁶ Includes 20.35 miles lying outside of district, but exclusive of 4.32 miles in district owned by outside companies. Total operated in district, 100.02 miles.⁷ Includes permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc.⁸ Includes 4.32 miles in Maryland.⁹ Includes 8.43 miles in Maryland.¹⁰ Includes permanent or other investments.¹¹ Includes 0.55 miles in Maryland.¹² Includes 1 mile leased from steam railroad.¹³ Exclusive of 1 mile of track leased from steam railroad, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$112,000.

STOCK AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$155,000	\$80,000			\$70,000	\$70,000			\$200,000	\$300,000	5	\$430,000	\$31,418	7
450,000	450,000			250,000	167,800			750,000	750,000	5	\$1,367,800	50,638	8
(¹)	(¹)			(¹)	(¹)			(¹)	(¹)		(¹)		9
2,732,000	2,732,000		\$72,200	170,000	169,995			3,425,000	3,070,000		5,971,995	62,254	
1,500,000	1,500,000							50,000	50,000	6	50,000	12,531	1
520,000	520,000	10	52,000					1,325,000	1,325,000	5	3,025,000	90,622	2
300,000	300,000	5	15,000					600,000	600,000	4	1,120,000		3
								150,000	150,000	6	450,000		3a
52,000	52,000	10	5,200					100,000	45,000	5	97,000	48,038	3b
200,000	200,000							400,000	300,000	5	500,000		3c
160,000	160,000			170,000	169,995			600,000	400,000	5	729,995	54,275	4
22,558,500	22,558,500		720,000	8,500,000	8,500,000		\$425,000	28,700,000	20,310,709		51,369,209	291,821	
2,000,000	2,000,000							3,000,000	2,517,000	5	4,517,000	218,002	1
108,500	108,500							350,000	350,000	6	1,458,500	37,951	2
300,000	300,000							100,000	100,000	6	1,300,000	34,522	3
12,000,000	12,000,000	6	730,000					6,000,000	2,520,000	4, 5	14,520,000	327,987	4
6,500,000	6,500,000			8,500,000	8,500,000	5	425,000	17,500,000	13,073,709	4, 5	\$28,073,709	495,040	5
1,750,000	1,750,000							1,750,000	1,750,000	5	3,500,000	104,394	6
4,731,000	4,104,869		168,400	1,020,000	730,000		30,000	4,335,000	2,775,000		7,009,800	\$3,942	
50,000	40,000	3½	1,400								40,000	33,333	1
6,000	5,750										5,750	5,088	2
800,000	800,000	6	48,000	300,000	200,000	6	12,000	1,250,000	944,000	5	\$1,944,000	87,371	3
150,000	49,110							85,000	85,000	6	134,110	20,632	4
500,000	435,000			230,000	230,000			1,000,000	450,000	5	\$1,115,000	225,253	5
800,000	800,000			500,000	300,000	6	18,000	1,600,000	706,000	5	\$1,896,000	92,987	6
300,000	150,000							400,000	400,000	6	\$550,000	77,904	7
25,000	25,000							100,000	100,000	5	125,000	13,514	8
400,000	100,000										100,000	12,180	9
1,700,000	1,700,000	7	119,000								\$1,700,000	65,606	10
14,367,100	14,360,400		443,771	3,750,000	2,750,000		200,016	18,903,000	16,789,600		24,900,000	\$8,426	
225,000	225,000	5	11,250	50,000	50,000	6	3,000	600,000	275,000	6	\$550,000	83,969	1
8,514,900	8,514,000	6	\$428,448	2,400,000	2,400,000	5	120,000	11,000,000	9,715,000	5	\$20,629,600	127,265	2
100,000	100,000							400,000	400,000	5	500,000	31,250	3
1,000,000	1,000,000							1,000,000	1,000,000	5	\$2,000,000	62,096	4
250,000	250,000							700,000	700,000	5, 6	\$950,000	25,976	5
20,000	13,600	10	1,360					400,000	250,000	5	13,600	6,044	6
300,000	300,000							1,000,000	992,500	5, 6	\$550,000	91,514	7
900,000	900,000			300,000	300,000	6	\$17,016	500,000	458,000	8	\$2,192,500	67,110	8
500,000	500,000			1,000,000	1,000,000	6	60,000	3,500,000	2,997,000	4, 5	\$968,000	108,864	9
2,500,000	2,500,000										\$6,497,000	113,604	10
50,000	50,000	5½	2,713								50,000	13,966	11
7,500	7,200							3,000	2,100	5	9,300	14,308	12
5,750,000	750,000			150,000	150,000			5,750,000	1,229,000		2,130,000	\$48,350	
750,000	750,000			150,000	150,000			750,000	296,000	5	\$1,296,000	132,841	1
5,000,000	(²)							5,000,000	550,000	5	650,000	24,638	2

¹ Operations largely confined to summer season.² Includes electric-light plant. This company has also a floating debt.³ Includes electric-light plant. Road was still under construction.⁴ Includes 5 miles leased to steam railroad and 2.20 miles lying outside of state, but exclusive of 4.63 miles in state owned by outside companies. Total operated in state, 35.41 miles.⁵ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$3,577,856.⁶ Includes electric-light plant.⁷ Stock not all outstanding the entire year.⁸ Includes 5 miles leased to steam railroad and 2.20 miles in Alabama.⁹ Net income turned over to holding company.¹⁰ Dividends paid on \$285,000 only.¹¹ Exclusive of 28.85 miles in state owned by an outside company. Total operated in state, 73.09 miles.¹² Stock has been issued, but no payments made.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
ILLINOIS.								
Total for state.....					12,776.46		\$241,984,800	\$300,154,600
1	Alton, Granite City, Venice, Madison, East St. Louis.	Alton, Granite and St. Louis Traction Co.	Jan. 1, 1907	Dec. 31, 1907	72.42	74.98	3,000,000	3,000,000
2	Alton, Grafton.	Alton, Jacksonville and Peoria Ry. Co.	Sept. 1, 1907	Dec. 31, 1907	5.50	5.50	800,000	100,000
3	Anna, Jonesboro.	Fruit Growers Refrigerating and Power Co.	Jan. 1, 1907	Dec. 31, 1907	4.50	4.50	100,000	100,000
4	Aurora, Kaneville, Maple Park, DeKalb.	Aurora, DeKalb and Rockford Electric Traction Co.	Jan. 1, 1907	Dec. 31, 1907	28.63	28.63	1,500,000	750,200
5	Belvidere.	Belvidere City Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.75	3.75	35,000	35,000
6	Bloomington, Normal.	Bloomington and Normal Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	18.30	18.30	600,000	600,000
7	Bloomington, Danvers, Maclellan, Morton, Peoria.	Peoria, Bloomington and Champaign Traction Co.	Jan. 1, 1907	Dec. 31, 1907	38.00	39.54	500,000	500,000
8	Cairo.	Cairo Electric and Traction Co.	Jan. 1, 1907	Dec. 31, 1907	10.00	10.00	150,000	150,000
9	Canon, St. David.	Illinois Central Electric Ry.	Jan. 1, 1907	Dec. 31, 1907	5.96	5.96	300,000	102,200
10	Centralia, Central City.	Centralia and Central City Traction Co.	Jan. 1, 1907	Dec. 31, 1907	3.00	3.00	110,000	110,000
11	Champaign, Urbana.	Urbana and Champaign Railway, Gas and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	8.00	8.00	500,000	500,000
12	Champaign, Seymour, Monticello, Bonmont, Cerro Gordo, Decatur.	St. Louis, Decatur and Champaign Ry. Co.	July 1, 1907	Dec. 31, 1907	51.56	53.66	500,000	500,000
13	Champaign, Urbana, St. Joseph, Muncie, Danville.	Danville, Urbana and Champaign Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	67.40	70.10	250,000	250,000
14	Chicago.	Chicago City Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	279.02	243.73	18,000,000	18,000,000
14a	do.	Chicago and Western Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.47		100,000	72,000
15	do.	Chicago Union Traction Co. ¹	Jan. 1, 1907	Dec. 31, 1907	1.50	326.74	32,000,000	32,000,000
15a	do.	West Chicago Street R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	90.59		20,000,000	13,188,000
15b	do.	Chicago West Division Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	110.56		1,250,000	1,250,000
15c	do.	Chicago Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	33.41		2,000,000	1,340,300
15d	do.	West Chicago Street Railroad Tunnel Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	.60		1,500,000	1,500,000
15e	do.	North Chicago Street R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	37.30		10,000,000	7,920,000
15f	do.	North Chicago City Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	62.78		500,000	500,000
16	do.	Chicago Consolidated Traction Co.	Jan. 1, 1907	Dec. 31, 1907	160.99	216.88	15,000,000	15,000,000
16a	do.	Chicago and North Shore Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	14.94		650,000	650,000
17	Chicago; Robey (Ind.).	Calumet Electric Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	¹⁴ 75.54	77.01	3,000,000	500,000
18	Chicago.	Chicago Electric Traction Co.	Jan. 1, 1907	Dec. 31, 1907	33.80	33.80	2,000,000	2,000,000
19	do.	Southern Street Ry. Co. ¹⁵	Jan. 1, 1907	Dec. 31, 1907	21.00	24.75	800,000	800,000
20	do.	General Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.30	3.00	5,000,000	5,000,000
21	do.	Suburban R. R. Co., including Chicago, Riverside and La Grange R. R. ¹⁶	Jan. 1, 1907	Dec. 31, 1907	¹⁷ 33.30	33.30	1,255,000	1,255,000
22	do.	Northwestern Elevated R. R. Co.	July 1, 1906	June 30, 1907	20.57	30.37	30,000,000	10,000,000
23	do.	South Side Elevated R. R. Co. ¹⁸	July 1, 1906	June 30, 1907	35.77	30.75	10,325,800	10,325,800
24	do.	Metropolitan West Side Elevated Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	44.54	53.92	18,000,000	16,172,000
24a	do.	Union Consolidated Elevated Ry. (lessor).	July 1, 1906	June 30, 1907	.38		1,000,000	1,000,000
25	do.	South Chicago City Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	34.64	34.64	2,000,000	2,000,000
26	do.	Chicago and Oak Park Elevated R. R. Co.	July 1, 1906	June 30, 1907	¹⁹ 22.57	22.56	10,000,000	10,000,000
27	Chicago, Evanston, Libertyville, Waukegan, Kenosha, Racine (Wis.).	Chicago and Milwaukee Electric R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	²⁰ 100.98	132.86	5,000,000	5,000,000
27a	do.	Chicago and Milwaukee Electric R. R. Co.—Wisconsin division (lessor).	Jan. 1, 1907	Dec. 31, 1907	²¹ 31.88		300,000	300,000
28	Chicago, Summit, Lemont, Joliet, Rockdale.	Chicago and Joliet Electric Ry. Co.	July 1, 1906	June 30, 1907	41.32	82.93	2,300,000	2,300,000
28a	do.	Chicago and Desplaines Valley Electric Ry. Co. (lessor).	July 1, 1906	June 30, 1907	41.63		1,100,000	1,100,000
29	Danville.	Danville Street Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	15.37	19.87	700,000	700,000
29a	do.	Danville and Eastern Illinois Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	3.50		500,000	125,000
29b	do.	Danville and Northern R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	1.00		25,000	25,000
30	Decatur.	Decatur Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	13.00	13.00	1,300,000	1,300,000
31	Decatur, Illinois, Mechanicsburg, Riverton, Springfield.	Illinois Central Traction Co.	Jan. 1, 1907	Dec. 31, 1907	42.90	45.50	1,100,000	1,100,000
32	Decatur, Clinton, Bloomington.	Chicago, Bloomington and Decatur Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	47.90	49.60	500,000	500,000
33	DeKalb, Sycamore.	DeKalb-Sycamore and Interurban Traction Co.	Apr. 1, 1907	Mar. 31, 1908	7.83	7.83	²² 1,600,000	²³ 600,000
34	Dixon, Sterling.	Sterling, Dixon and Eastern Electric Ry. Co.	July 1, 1906	June 30, 1907	17.69	17.60	300,000	300,000
35	East St. Louis, Belleville.	St. Louis and Belleville Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	15.00	15.00	750,000	750,000

¹ Includes 15.42 miles leased from steam railroads, 1.73 miles owned by bridge company, 1.79 miles not operated, and 53.80 miles lying outside of state, but exclusive of 32.84 miles in state owned by an outside company. Total operated in state, 2,755.71 miles.

² Exclusive of 15.42 miles of track leased from steam railroads, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$2,073,435.

³ Road was still under construction.

⁴ Amount apportioned to railway and electric-light departments.

⁵ Net income turned over to holding company.

⁶ Includes electric-light plant and permanent or other investments.

⁷ Includes electric-light plant.

⁸ Operated by receiver during census year.

⁹ Includes permanent or other investments. This company has also a floating debt.

¹⁰ Dividends paid on \$624,000 only.

¹¹ Includes permanent or other investments.

¹² Dividends paid on \$610,000 only.

¹³ This company has also a floating debt.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$191,234,400	\$170,358,550		\$2,516,701	\$50,750,000	\$29,795,850		\$353,928	\$254,292,000	\$167,379,400		\$307,533,800	\$115,341	
3,000,000	3,000,000							3,000,000	2,000,000	5	5,000,000	70,256	1
500,000	186,000			300,000				800,000	200,000	5	3,390,000	68,545	2
4100,000	4100,000							50,000	41,300	5	414,300	31,376	3
1,500,000	750,200							1,500,000	680,000	5	1,430,200	50,164	4
35,000	35,000							20,000	20,000	5	35,000	14,067	5
600,000	600,000	(2)						2,000,000	1,279,000	5	1,879,000	102,678	6
500,000	500,000	(1)						3,000,000	2,000,000	5	2,500,000	64,767	7
150,000	150,000	10	15,000					100,000	100,000	5	1,250,000	25,000	8
200,000	135,050			100,000	27,150			150,000	85,000	5	247,200	42,184	9
110,000	110,000							100,000	90,000	5	200,000	69,667	10
500,000	500,000	(2)						750,000	500,000	5	1,000,000	125,000	11
500,000	500,000	(2)						3,000,000	1,328,000	5	1,828,000	35,454	12
250,000	250,000	(2)						2,000,000	2,201,000	5, 6	2,451,000	30,365	13
18,000,000	18,000,000	6 1/2	1,215,000					13,000,000	7,100,000	5	25,100,000	104,543	14
100,000	72,000							100,000	74,000	5	140,000		14a
20,000,000	20,000,000			12,000,000	12,000,000						32,000,000		15
20,000,000	13,180,000							20,000,000	10,497,000	5, 6	23,990,000		15a
1,250,000	1,250,000	35	218,610					4,070,000	4,012,000	4 1/2	5,202,000		15b
2,000,000	1,340,300	5	30,515					6,000,000	1,306,000	5	2,046,300	253,410	15c
1,500,000	1,500,000							1,500,000	1,500,000	5	3,000,000		15d
10,000,000	7,920,000							4,785,000	4,785,000	4 1/2	12,705,000		15e
500,000	500,000	50	74,970					3,000,000	3,000,000	4 1/2	3,000,000		15f
15,000,000	15,000,000							11,958,000	11,784,000	4 1/2	20,784,000		16
650,000	650,000	6	39,000					675,000	675,000	6	1,325,000	151,908	16a
3,000,000	500,000							3,675,000	3,000,000	5	3,500,000	46,333	17
2,000,000	2,000,000							650,000	650,000	5	2,650,000	78,402	18
800,000	800,000							800,000	700,000	5	1,400,000	66,667	19
5,000,000	5,000,000							5,000,000	500,000	5	5,500,000	1,833,333	20
1,255,000	1,255,000							3,000,000	1,250,000	5	2,505,000	80,032	21
5,000,000	5,000,000			25,000,000	5,000,000			30,000,000	18,926,000	4 1/2	28,926,000	978,221	22
10,323,800	10,323,800	4	412,952	0,000,000	8,707,900	2 1/2	195,928	8,000,000	8,000,000	4 1/2	18,323,800	465,142	23
7,500,000	7,464,100							14,500,000	13,321,000	4	29,493,000	687,890	24
1,000,000	1,000,000							1,000,000	407,000	5	1,407,000		24a
2,000,000	2,000,000							5,000,000	1,994,000	5	3,994,000	115,300	25
10,000,000	10,000,000							6,000,000	3,366,000	5	15,366,000	699,677	26
5,000,000	5,000,000							5,000,000	5,000,000	5	10,000,000		27
300,000	300,000							10,000,000	10,000,000	5	10,300,000	156,587	27a
2,300,000	2,300,000							2,000,000	2,000,000	5	4,300,000		28
1,100,000	1,100,000							1,000,000	1,000,000	5	2,100,000	77,155	28a
700,000	700,000	(1)						1,000,000	697,000	5, 6	1,297,000		29
500,000	125,000							240,000	240,000	5	365,000		29a
25,000	25,000							20,000	17,000	5	42,000		29b
1,300,000	1,300,000	(2)						2,250,000	1,232,000	5	2,532,000	106,308	30
1,100,000	1,100,000	(2)						2,000,000	1,455,000	5	2,555,000	30,557	31
500,000	500,000	(2)						2,000,000	1,082,000	5	1,582,000	33,027	32
1,500,000	600,000							1,500,000	292,000	5	1,892,000	113,921	33
370,000	300,000							400,000	400,000	5	700,000	43,471	34
750,000	750,000	2 1/2	18,750					750,000	750,000	5	1,800,000	100,000	35

¹¹ Dividends paid on \$240,000 only.¹² Includes 0.50 mile in Indiana.¹³ Combined report of Chicago General Ry. Co. for nine months and Southern Street Ry. Co. for three months.¹⁴ Includes 2 miles leased from steam railroad.¹⁵ Includes \$5,000 stock of Chicago, Riverside and La Grange R. R.¹⁶ Leased part of Chicago Junction R. R. (steam) in September, 1907, after period covered by this report.¹⁷ Includes 0.80 mile leased to loop division of Northwestern Elevated and 0.79 mile owned but not operated.¹⁸ Includes 3.22 miles leased from steam railroad.¹⁹ Entire trackage (31.88 miles) in Wisconsin.²⁰ Includes permanent or other investments. This division was still under construction.²¹ Includes capital stock of DeKalb-Sycamore Electric Co., operated by this company.²² Includes bonds of DeKalb-Sycamore Electric Co., operated by this company.

STREET AND ELECTRIC RAILWAYS.

TABLE 183. NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding
ILLINOIS—continued.								
36	East St. Louis, Belleville, O'Fallon, Lebanon, Collinsville, Edwardsville; St. Louis (Mo.).	East St. Louis and Suburban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	175.60	111.27	\$3,750,000	\$3,631,000
36a		East St. Louis Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	33.94		2,500,000	1,806,000
36b		St. Louis and East St. Louis Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	*1.73		500,000	500,000
37	Elgin, Huntley, Marengo, Belvidere.	Elgin and Belvidere Electric Co.	Feb. 1, 1907	Jan. 31, 1908	34.92	31.62	1,200,000	1,200,000
38	Freeport.	Freeport Railway, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	8.50	8.50	350,000	350,000
39	Galesburg, Knoxville.	Galesburg Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	20.25	20.25	1,000,000	1,000,000
40	Galesburg, Alton.	Peoples Traction Co.	July 1, 1906	June 30, 1907	14.00	14.00	150,000	150,000
41	Granite City, Venice, Madison.	Citizens Railway Co. of Venice.	Dec. 1, 1907	Dec. 31, 1907	5.25	5.25	5,000	5,000
42	Hamilton, Warsaw, Keokuk (Iowa).	Keokuk and Western Illinois Electric Co.	Oct. 1, 1906	Sept. 30, 1907	*7.71	8.47	50,000	50,000
43	Harvard, Walworth, Fontana (Wis.).	Chicago, Harvard and Geneva Lake Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	¹⁰ 11.62	11.62	150,000	150,000
44	Harvey, Kankakee.	Chicago and Southern Traction Co.	Jan. 1, 1907	Dec. 31, 1907	42.58	42.58	5,000,000	2,300,000
45	Hillsboro.	Sangamon Valley Ry.	Nov. 6, 1907	Dec. 31, 1907	1.50	1.50	30,000	30,000
46	Hillsboro, Litchfield, Staunton, Edwardsville, Granite City, East St. Louis.	St. Louis and North Eastern Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	58.32	64.62	1,000,000	1,000,000
47	Jacksonville.	Jacksonville Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	7.00	7.00	500,000	100,000
48	Joliet, Plainfield, Aurora.	Joliet, Plainfield and Aurora R. R. ¹²	Jan. 1, 1907	Dec. 31, 1907	19.15	23.23	500,000	500,000
49	Kankakee.	Kankakee Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	9.00	10.38	150,000	50,000
49a	do.	Kankakee and Western Electric Ry. Co. (lessor).	Dec. 1, 1906	Nov. 30, 1907	1.39		15,000	12,000
50	Kankakee, Bradley, Bourbonnais.	North Kankakee Electric Light and Ry. Co.	July 1, 1906	June 30, 1907	4.33	4.33	100,000	32,600
51	Kewanee, Galva.	Galesburg and Kewanee Electric Ry. Co.	July 1, 1906	June 30, 1907	13.93	13.93	600,000	310,800
52	Lasalle, Ottawa, Seneca, Peru, LaSalle, Princeton.	Illinois Valley Ry. Co. ¹³	Jan. 1, 1907	Dec. 31, 1907	60.62	60.62	100,000	100,000
53	Lincoln.	Lincoln Railway and Light Co.	May 4, 1907	Dec. 31, 1907	8.50	8.50	150,000	150,000
54	Marion, Herrin, Carterville.	Coal Belt Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	¹⁴ 16.09	16.09	300,000	300,000
55	Mattoon, Charleston.	Mattoon City Ry. Co.	July 1, 1906	June 30, 1907	14.50	14.50	500,000	500,000
56	Moline, Watertown.	Moline, East Moline and Watertown Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	7.85	7.85	200,000	200,000
57	Monmouth, Cameron, Galesburg.	Rock Island Southern R. R. Co.	July 1, 1906	June 30, 1907	17.50	20.00	3,000,000	300,000
58	Murphy'sboro.	Murphy'sboro Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.55	1.55	11,000	11,000
59	Ottawa.	Northern Illinois Light and Traction Co.	Jan. 1, 1907	Dec. 31, 1907	¹⁵ 8.55	7.55	250,000	250,000
60	Paris.	Paris Traction Co.	May 23, 1907	Dec. 31, 1907	4.00	4.00	50,000	50,000
61	Peoria, East Peoria.	Peoria Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	32.49	32.49	1,000,000	1,000,000
62	Peoria, Pekin.	Peoria Railway Terminal Co.	July 1, 1907	June 30, 1908	9.00	14.00	1,000,000	1,000,000
63	Pontiac, Odell, Dwight.	Bloomington, Pontiac and Joliet Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	19.27	19.27	100,000	95,500
64	Quincy.	Quincy Horse Railway and Carrying Co.	Jan. 1, 1907	Dec. 31, 1907	18.00	18.00	600,000	600,000
65	Rockford, Belvidere, Peotone, Freeport, Rockton; Belton, Jansville (Wis.).	Rockford and Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	¹⁶ 101.65	101.80	1,050,000	1,050,000
66	Springfield.	Springfield Consolidated Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	32.83	32.83	900,000	900,000
67	Springfield, Chatham, Girard, Carlinville, Staunton.	St. Louis and Springfield Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	61.40	62.50	575,000	575,000
68	Springfield, Williamsville, Elkhart, Lincoln.	Springfield and North Eastern Traction Co.	Jan. 1, 1907	Dec. 31, 1907	30.40	33.30	1,500,000	1,500,000
69	Streator.	Illinois Light and Traction Co.	Nov. 1, 1906	Oct. 31, 1907	6.50	6.50	400,000	400,000
70	Wheaton, Elgin, Carpentersville, Batavia, Aurora, Yorkville, Chicago.	Aurora, Elgin and Chicago R. R. Co.	July 1, 1906	June 30, 1907	148.46	154.46	6,200,000	6,200,000
INDIANA.								
Total for state.					¹⁷ 1,932.93		131,799,500	94,223,970
1	Anderson, Muncie, Winchester, Union City, Hartford City, Bluffton, Alexandria, Elwood, Jonesboro, Marion, Warsaw, Indianapolis, Noblesville, Tip-top, Kokomo, Peru, Logansport.	Indiana Union Traction Co.	Jan. 1, 1907	Dec. 31, 1907	64.11	378.12	5,000,000	4,980,000
1a		Union Traction Company of Indiana (lessor).	Jan. 1, 1907	Dec. 31, 1907	262.85		8,500,000	8,500,000
1b		Muncie, Hartford and Fort Wayne Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	44.71		1,000,000	1,000,000
2	Angola.	Angola Railway and Power Co.	Jan. 1, 1907	Dec. 31, 1907	4.10	4.10	100,000	96,800
3	Bluffton, Marion.	Marion, Bluffton and Eastern Traction Co.	Jan. 1, 1907	Dec. 31, 1907	32.37	32.37	850,000	850,000
4	Brownstown.	Brownstown and Ewing Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.00	1.00	5,000	3,400
5	Columbus.	Central Indiana Lighting Co.—railway department (formerly John S. Crump Electric Street Railway and Light Plant).	Jan. 1, 1907	Dec. 31, 1907	7.00	7.00	¹⁸ 25,000	¹⁹ 25,000

¹ Includes 2.16 miles leased from steam railroad.² Stock not all outstanding the entire year.³ This company has also a floating debt.⁴ Entire trackage 41.73 miles, lessor from bridge company and includes 0.85 mile in Missouri.⁵ Includes permanent or other investments.⁶ Includes electric-light plant.⁷ Includes electric-light plant and permanent or other investments.⁸ Net income turned over to holding company.⁹ Includes 14 miles leased from steam railroad.¹⁰ Includes 6 miles in Wisconsin.¹¹ Road was still under construction.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$3,750,000	\$3,631,000	5 $\frac{1}{2}$	\$192,217					\$4,000,000	\$3,630,000	5	\$7,261,000		36
2,500,000	1,806,000	6 $\frac{1}{2}$	\$120,405					2,640,000	1,766,000	5, 6	3,572,000	\$108,450	36a
500,000	500,000	10	50,000					500,000	500,000	5	1,000,000		36b
800,000	800,000			\$400,000	\$400,000			1,000,000	800,000	5	2,000,000	57,274	37
200,000	200,000			150,000	150,000			350,000	350,000	4	700,000	82,263	38
1,000,000	1,000,000							1,500,000	750,000	5	1,750,000	86,420	39
150,000	150,000							170,000	149,700	5	299,700	21,407	40
5,000	5,000		(*)					400,000	400,000	5	405,000	77,143	41
50,000	50,000							50,000	50,000	6	100,000	63,694	42
150,000	150,000							150,000	125,000	5	275,000	23,666	43
5,000,000	2,500,000							5,000,000	2,500,000	5	5,000,000	117,426	44
30,000	30,000							15,000	15,000	6	45,000	39,000	45
1,000,000	1,000,000							900,000	900,000		1,900,000	32,579	46
500,000	100,000		(*)					1,275,000	629,000	5, 6	729,000	104,143	47
400,000	400,000			100,000	100,000			400,000	400,000	5	900,000	46,997	48
100,000	50,000							100,000	50,000	6	100,000	10,790	49
15,000	12,000										12,000		49a
100,000	32,600	7	2,282					25,000	25,000	6	57,600	13,303	50
200,000	200,000			400,000	110,800			400,000	169,500	5	449,500	24,480	51
100,000	100,000							2,000,000	1,500,000	5	1,500,000	20,394	52
150,000	150,000							150,000	40,000	5	190,000	22,353	53
300,000	300,000										300,000	20,264	54
500,000	300,000							500,000	500,000	5	1,000,000	68,994	55
200,000	200,000	6 $\frac{1}{2}$	12,000					200,000	200,000	5	400,000	30,955	56
3,000,000	500,000							2,500,000	400,000	4	900,000	51,429	57
11,000	11,000										11,000	7,097	58
250,000	250,000							1,250,000	255,000	5	815,000	60,234	59
50,000	50,000										50,000	12,500	60
1,000,000	1,000,000		(*)					4,350,000	3,374,000	5	4,374,000	83,540	61
1,000,000	1,000,000							1,750,000	1,220,000	4	2,220,000	246,667	62
100,000	95,500							300,000	300,000	5	395,500	20,524	63
600,000	600,000							550,000	535,000	5	1,135,000	63,054	64
1,000,000	1,000,000	6	60,000	50,000	50,000	6	\$3,000	2,850,000	2,000,000	5	3,000,000	36,121	65
900,000	900,000	6	54,000					750,000	750,000	5	1,650,000	50,259	66
575,000	575,000		(*)					2,250,000	1,520,000	5	2,045,000	34,010	67
1,500,000	1,500,000		(*)					1,500,000	850,000	5	2,300,000	75,658	68
250,000	250,000			150,000	150,000			375,000	375,000	5, 6	775,000	119,221	69
2,100,000	2,100,000			3,100,000	3,100,000	5	155,000	25,000,000	6,000,000	5	12,200,000	82,177	70
105,749,500	75,830,200		457,160	26,050,000	18,303,710		249,864	92,974,300	72,063,350		166,267,320	\$12,307	
5,000,000	4,990,000							5,000,000	2,675,000	5	7,665,000		1
												76,244	
7,500,000	7,500,000	12	104,667	1,000,000	1,000,000	5	50,000	10,184,500	10,184,500	5, 6	18,684,500		1a
500,000	500,000			500,000	500,000	5	25,000	1,000,000	988,000	5	1,988,000		1b
100,000	96,000							100,000	94,750		191,050	46,744	2
850,000	850,000							850,000	730,000	5	1,570,000	48,562	3
5,000	3,400										3,400	3,400	4
25,000	25,000							45,000	45,000	5	70,000	10,006	5

^a Controlled by Joliet and Southern Traction Co., the property of this company being under construction during the census year.

^b Includes permanent or other investments. This company has also a floating debt.

^c Leased to Chicago, Ottawa and Peoria Ry. Co., a holding company, June 1, 1907, but operated independently the entire year.

^d Includes 1.90 miles leased from steam railroad.

^e Includes 1 mile owned but not operated.

^f Includes 14.57 miles in Wisconsin.

^g Includes 4.62 miles leased from steam railroads, 0.88 mile leased from bridge company, and 36.43 miles lying outside of state, but exclusive of 32.28 miles in state owned by outside companies. Total operated in state, 1,928.78 miles.

^h Exclusive of 4.62 miles of track leased from steam railroads, 0.88 mile leased from bridge company, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$7,640,403.

ⁱ Amount apportioned to railway department.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
INDIANA—Continued.								
6	Columbus, Franklin, Indianapolis, Seymour.	Indianapolis, Columbus and Southern Traction Co.	Jan. 1, 1907	Dec. 31, 1907	60.25	64.11	\$1,000,000	\$930,000
7	Decatur, Fort Wayne.	Fort Wayne and Springfield Ry. Co.	Feb. 1, 1907	Jan. 31, 1908	20.55	22.85	500,000	500,000
8	Evansville, Princeton.	Evansville and Southern Indiana Traction Co.	Jan. 1, 1907	Dec. 31, 1907	61.73	61.73	4,500,000	3,000,000
9	Evansville, Mt. Vernon, Rockport.	Evansville Railways Co.	Jan. 1, 1907	Dec. 31, 1907	42.47	55.70	1,500,000	1,024,000
10	Evansville, Newburgh Jet., Chandler, Boonville.	Evansville Suburban and Newburgh Ry. Co.	July 1, 1906	June 30, 1907	27.80	27.80	500,000	307,400
11	Fort Wayne, Bluffton, Huntington, Wabash, Peru, Logansport, Delphi, Lafayette, Battle Ground.	Fort Wayne and Wabash Valley Traction Co.	Jan. 1, 1907	Dec. 31, 1907	148.53	211.73	7,500,000	7,500,000
11a		Fort Wayne, Bluffton and Marion Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	24.40		550,000	550,000
11b		La Fayette-Logansport Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907			500,000	500,000
12	French Lick, West Baden.	French Lick and West Baden Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.09	1.09	50,000	50,000
13	Hammond, East Chicago, Whiting.	Hammond, Whiting and East Chicago Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	26.94	25.94	1,000,000	510,000
14	Indianapolis.	Indianapolis Traction and Terminal Co.	Jan. 1, 1907	Dec. 31, 1907	16.18	136.13	5,000,000	5,000,000
14a	do.	Indianapolis Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	117.19		5,000,000	5,000,000
15	Indianapolis, Lebanon, Frankfort, Lafayette, Crawfordsville, Greenfield, New Castle, Richmond, Martinsville, Greencastle, Brazil, Terre Haute, Sullivan, Clinton.	Terre Haute, Indianapolis and Eastern Traction Co.	Jan. 1, 1907	Dec. 31, 1907	146.63	384.63	25,000,000	16,000,000
15a		Terre Haute Traction and Light Co. (lessor).	Apr. 1, 1907	Dec. 31, 1907	100.26		3,000,000	3,000,000
15b		Indianapolis and Northwestern Traction Co. (lessor).	Apr. 1, 1907	Dec. 31, 1907	88.74		3,550,000	3,000,000
15c		Indianapolis and Martinsville Rapid Transit Co. (lessor).	Apr. 1, 1907	Dec. 31, 1907	29.54		750,000	750,000
16	Indianapolis, Rushville, Connersville, Shelbyville, Greensburg.	Indianapolis and Cincinnati Traction Co.	Jan. 1, 1907	Dec. 31, 1907	61.90	118.09	2,000,000	2,000,000
16a		Indianapolis and Southeastern Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	50.17		1,200,000	1,200,000
17	Indianapolis, Crawfordsville.	Indianapolis, Crawfordsville and Western Traction Co.	July 1, 1907	Dec. 31, 1907	44.25	46.25	3,000,000	1,500,000
18	Kendallville, Garrett, Auburn, Waterloo, Fort Wayne.	Toledo and Chicago Interurban Ry. Co.	July 1, 1907	May 31, 1908	42.75	43.89	1,250,000	1,250,000
19	Kokomo, Marion.	Kokomo, Marion and Western Traction Co.	Jan. 1, 1907	Dec. 31, 1907	40.00	40.00	1,100,000	1,080,000
20	Laporte.	Chicago-New York Electric Air Line R. R. Co., including Goshen, South Bend and Chicago R. R. Co.	June 15, 1907	Dec. 31, 1907	13.50	13.50	25,000,000	5,086,000
21	Lebanon, Thornton.	Lebanon-Thornton Traction Co.	Jan. 1, 1907	Dec. 31, 1907	9.39	10.05	150,000	150,000
22	Madison.	Madison Light and Ry. Co.	Nov. 1, 1906	Oct. 31, 1907	4.08	4.08	75,000	75,000
23	New Albany, Jeffersonville, Louisville (Ky.).	Louisville and Southern Indiana Traction Co.	Aug. 1, 1906	July 31, 1907	30.55	47.33	2,000,000	2,435,000
23a		New Albany Street R. R. Co. (lessor).	Aug. 1, 1906	July 31, 1907	11.18		300,000	300,000
24	New Albany, Jeffersonville, Sellersburg, Charlestown, Louisville (Ky.).	Louisville and Northern Railway and Lighting Co.	Oct. 1, 1906	Sept. 30, 1907	23.17	24.39	5,000,000	4,416,630
25	Peru, Chillicothe.	Winona Interurban Ry. Co. (Peru division).	Sept. 1, 1906	Aug. 31, 1907	9.67	9.67	600,000	
26	Portland, Muncie.	Muncie and Portland Traction Co.	Jan. 1, 1907	Dec. 31, 1907	31.25	32.36	1,000,000	1,000,000
27	Seymour, Scottsburg, Louisville (Ky.).	Indianapolis and Louisville Traction Co.	Oct. 17, 1907	Dec. 31, 1907	41.79	55.84	3,000,000	1,000,000
28	South Bend, Mishawaka, Elkhart, Goshen, Laporte, Michigan City.	Chicago, South Bend and Northern Indiana Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	79.48	79.48	7,500,000	7,500,000
29	South Bend; Niles, St. Joseph (Mich.).	Southern Michigan Ry. Co.	July 1, 1906	June 30, 1907	34.78	40.17	2,000,000	2,000,000
30	Vincennes.	Vincennes Traction and Light Co.	Jan. 1, 1907	Dec. 31, 1907	8.10	8.10	200,000	100,000
31	Washington.	Washington Street Ry.	Jan. 1, 1907	Dec. 31, 1907	2.95	2.95	114,500	114,500
32	Warsaw, Goshen.	Winona Interurban Ry. Co. ⁹	Sept. 1, 1906	Aug. 31, 1907	24.10	26.10	16,000	16,000
33	Winona Lake, Warsaw.	Winona and Warsaw Ry. Co.	Sept. 1, 1906	Aug. 31, 1907	3.92	3.92	10,000	10,000
IOWA.								
Total for state					1633.84		27,746,000	20,083,046
1	Albia, Hocking.	Albia Interurban Ry. Co.	Dec. 18, 1907	Dec. 31, 1907	3.20	3.20	100,000	83,000
2	Boone.	Boone Electric Street Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	2.00	2.00	200,000	98,000
3	Boone, Fort Dodge, Ames, Des Moines.	Fort Dodge, Des Moines and Southern R. R. Co.	June 10, 1907	Dec. 31, 1907	494.18	102.94	6,700,000	12,112,502
4	Boone, Booneboro.	Boone Suburban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	4.20	4.20	15,000	15,000

¹ This company has also a floating debt.² Includes electric-light plant and permanent or other investments. This company has also a floating debt.³ Includes permanent or other investments.⁴ Includes electric-light plant. This company has also a floating debt.⁵ Dividends paid on \$500,000 only.⁶ Includes permanent or other investments. This company has also a floating debt.⁷ Includes electric-light plant.⁸ Includes 9.18 mile in Kentucky.⁹ Includes 7.16 miles in Kentucky, 4.62 miles leased from steam railroads, and 0.88 mile leased from bridge company.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$1,000,000	\$930,000							\$1,000,000	\$935,000	5	\$1,965,000	\$30,954	6
500,000	500,000	1	\$5,000					300,000			1,500,000	24,331	7
3,000,000	2,000,000			\$1,500,000	\$1,000,000			4,000,000	2,600,000	5	5,600,000	90,718	8
1,000,000	992,000			500,000	62,000			1,100,000	900,000	5	1,924,000	45,303	9
500,000	307,400							500,000	500,000	5	807,400	29,043	10
6,000,000	6,000,000			1,500,000	1,500,000			7,500,000	6,875,000	4.5, 6	\$14,375,000		11
300,000	300,000			250,000	250,000			400,000	400,000	5	950,000	78,992	11a
500,000	500,000							1,000,000	900,000	5	1,400,000		11b
50,000	50,000	4	2,000								50,000	45,872	12
1,000,000	510,000	6	30,600								510,000	19,661	13
5,000,000	5,000,000							5,000,000	4,250,000	5	\$9,250,000		14
5,000,000	5,000,000	6	300,000					10,000,000	10,000,000	4.5	15,000,000	181,948	14a
12,500,000	8,000,000			12,500,000	8,000,000	1	\$40,000	10,000,000	6,500,000	5	\$22,500,000		15
2,000,000	2,000,000			1,000,000	1,000,000	6	\$30,000	3,965,000	3,965,000	5	6,965,000	99,885	15a
2,550,000	2,550,000			1,000,000	450,000			3,000,000	2,470,000	5	5,470,000		15b
750,000	750,000							750,000	750,000	5	1,500,000		15c
2,000,000	2,000,000							4,000,000	2,000,000	5	\$4,000,000		16
600,000	600,000	2½	14,663	600,000	600,000	5	30,000	1,000,000	1,000,000	5	2,200,000	55,323	16a
3,000,000	1,500,000							3,000,000	1,500,000	5	3,000,000	67,797	17
1,250,000	1,250,000							1,250,000	407,500	5	\$1,657,500	38,772	18
1,000,000	1,000,000			100,000	80,000	6	4,800	1,000,000	1,000,000	5	\$2,080,000	52,000	19
23,000,000	5,086,000										\$5,086,000	376,741	20
150,000	150,000							150,000	150,000	5	300,000	31,949	21
75,000	75,000							125,000	120,000	5	\$195,000	47,794	22
2,000,000	2,000,000			1,000,000	435,080	7	26,008	1,000,000	1,000,000	5	3,435,080	95,497	23
200,000	200,000			100,000	100,000	4	4,000	250,000	250,000	5	550,000		23a
3,500,000	3,500,000			1,500,000	916,630			2,500,000	500,000	5	\$4,016,630	278,247	24
600,000								2,000,000	195,500	5	\$195,500	20,217	25
1,000,000	1,000,000							1,000,000	900,000	5	1,900,000	60,900	26
2,500,000	1,000,000			500,000				1,250,000	1,250,000	4	2,250,000	53,841	27
5,000,000	5,000,000			2,500,000	2,500,000			5,000,000	3,030,000	5	10,530,000	132,486	28
2,000,000	2,000,000							2,000,000	2,000,000	5	\$4,000,000	115,009	29
200,000	100,000							800,000	250,000	5	350,000	43,210	30
18,500	18,500										\$18,500	6,271	31
16,000	16,000							750,000	683,500	5	\$1,708,500	29,440	32
10,000	10,000							184,800	44,600	5	\$164,600	13,929	33
23,600,000	18,061,846		204,500	4,077,000	2,631,200		15,000	25,836,000	12,804,500		33,497,546	\$55,070	
100,000	83,000							50,000	33,000	5	116,000	36,250	1
200,000	98,000							125,000	75,500	6	\$173,500	86,750	2
5,500,000	\$2,112,502			1,300,000				10,000,000			\$2,112,502	34,929	3
15,000	15,000	20	3,000								15,000	3,571	4

^a This division operated independently with separate capitalization and was still under construction. (See also No. 32.)

^b Includes 29.08 miles in Michigan.

^c Cash investment.

^d See also No. 25.

^e Includes 38.02 miles leased from steam railroads and 34.34 miles lying outside of state, but exclusive of 35.89 miles in state owned by outside companies. Total operated in state, 641.39 miles.

^f Exclusive of 58.02 miles of track leased from steam railroads, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,460,557.

^g Includes 37.70 miles leased from steam railroad.

^h Cash investment. Stock not yet issued.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.			MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.		
							Authorized.	Outstanding.	
IOWA—Continued.									
5	Burlington.....	Peoples Gas and Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	17.00	17.00	\$831,000	\$831,000	
6	Cedar Rapids, Marion.....	Cedar Rapids and Marion City Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	19.94	19.94	450,000	445,000	
7	Cedar Rapids, Iowa City.....	Cedar Rapids and Iowa City Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	29.67	30.50	2,000,000	2,000,000	
7a	.....	Iowa Traction Co. (lessors).....	Jan. 1, 1907	Dec. 31, 1907	83	.....	10,000	10,000
8	Centerville.....	Centerville Light and Traction Co.....	May 1, 1907	Apr. 30, 1908	1.94	1.90	125,000	125,000	
9	Clinton.....	Clinton Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	15.50	15.50	600,000	600,000	
10	Clinton, Davenport.....	Iowa and Illinois Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	36.55	40.48	2,300,000	2,054,200	
	Connell Bluffs.....	Omaha and Connell Bluffs Railway and Bridge Co. (see Nebraska).....							
11	Davenport, Rock Island, Moline, Watertown, Miah (Ill.).....	Tri-City Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	100.00	74.44	2,500,000	2,500,000	
12	Des Moines.....	Des Moines City Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	80.15	87.26	3,000,000	1,365,000	
13	Des Moines, Colfax, Perry.....	Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	72.65	79.65	1,200,000	1,200,000	
14	Dubuque.....	Union Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	17.46	17.46	1,352,000	1,352,000	
15	Fort Madison.....	Fort Madison Street Ry. Co.....	June 1, 1906	May 31, 1907	4.00	4.00	100,000	100,000	
16	Keokuk.....	Keokuk Electric Railway and Power Co.....	July 1, 1906	June 30, 1907	6.50	6.50	400,000	400,000	
	.....	Keokuk and Western Illinois Electric Co. (see Illinois).....						
17	Marshalltown.....	Marshalltown Light, Power and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	3.88	3.88	250,000	250,000	
18	Mason City, Clear Lake.....	Mason City and Clear Lake Traction Co.....	July 1, 1906	June 30, 1907	17.34	17.34	200,000	200,000	
19	Muscatine.....	Citizens Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	12.00	12.00	600,000	600,000	
20	Osakaosa, Beacon.....	Osakaosa Traction and Light Co.....	May 1, 1907	Apr. 30, 1908	4.94	7.24	300,000	300,000	
20a	.....	Osakaosa and Buxton Electric Ry. Co. (lessors).....	May 1, 1907	Apr. 30, 1908	2.39	.....	500,000	439,344
21	Ottumwa.....	Ottumwa Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	11.70	11.70	1,500,000	1,500,000	
22	Sioux City, South Sioux City (Nebr.).....	Sioux City Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	16.00	16.00	1,200,000	1,200,000	
23	Toledo, Tama.....	Tama and Toledo Electric Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	3.00	3.00	80,000	80,000	
24	Waterloo, Cedar Falls, Denver.....	Waterloo, Cedar Falls and Northern Ry.....	Jan. 1, 1907	Dec. 31, 1907	100.05	68.01	1,200,000	1,200,000	
KANSAS.									
Total for state.....						1,249.88		14,013,000	8,525,785
1	Arkansas City.....	Arkansas City Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.50	5.50	100,000	50,000	
2	Atchison.....	Atchison Railway, Light and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	9.00	9.00	900,000	554,000	
3	Fort Scott.....	Fort Scott Gas and Electric Co. (street railway department).....	July 1, 1906	June 30, 1907	8.00	8.00	126,000	126,000	
4	Girard, Radley, Arma.....	Girard Coal Belt Electric Ry. Co.....	Nov. 24, 1907	Dec. 31, 1907	8.30	8.30	100,000	40,293	
5	Hutchinson.....	Hutchinson Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.93	5.93	100,000	25,492	
6	Independence, Coffeyville.....	Union Traction Co.....	July 1, 1907	Dec. 31, 1907	27.50	27.50	450,000	240,000	
7	Iola, Labarre.....	Iola Electric R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	18.95	8.05	150,000	150,000	
8	Junction City, Fort Riley.....	Electric Railway, Light and Ice Co.....	Jan. 1, 1907	Dec. 31, 1907	5.61	5.61	300,000	300,000	
9	Leavenworth, Fort Leavenworth, Lansing, Walcott, Kansas City.....	Kansas City-Western Ry. Co.....	July 1, 1906	June 30, 1907	43.53	43.53	3,750,000	2,000,000	
10	Pittsburg, Frontenac, Waver City, Seaman, Columbus, Joplin, Mo.....	Joplin and Pittsburg Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	132.36	22.36	5,000,000	2,000,000	
11	Rosendale, Lenexa, Olathe.....	Missouri and Kansas Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	22.50	22.50	1,000,000	1,000,000	
12	Rosedale, Merriam.....	Kansas City and Olathe Electric R. R. Co.....	Oct. 1, 1907	Dec. 31, 1907	4.54	4.54	400,000	125,000	
13	Salina.....	Salina Street and Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	3.00	3.00	100,000	100,000	
14	Strong, Cottonwood Falls.....	Consolidated Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	2.05	2.05	10,000	10,000	
15	Topeka, Oakland.....	Topeka Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	34.50	34.50	1,250,000	1,250,000	
16	Wichita.....	Wichita Railroad and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	22.27	22.27	300,000	300,000	
17	Winfield.....	Union Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	6.25	6.25	17,000	17,000	
KENTUCKY.									
Total for state.....						1,389.13		16,970,000	16,047,400
1	Bowling Green.....	Bowling Green Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.60	4.60	20,000	20,000	
2	Covington, Dayton, Newport, Latonia, Ludlow, Cincinnati (Ohio).....	Cincinnati, Newport and Covington Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	66.70	66.08	4,000,000	3,200,000	
3	Henderson.....	Henderson Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	6.25	6.25	150,000	150,000	
4	Lexington.....	Lexington Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	17.00	17.00	800,000	800,000	
5	Lexington, Georgetown, Paris.....	Blue Grass Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	31.50	33.50	700,000	700,000	
6	Lexington, Versailles, Frankfort.....	Central Kentucky Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	36.02	36.02	425,000	425,000	
7	Louisville.....	Louisville Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	163.11	163.11	7,500,000	7,450,540	
8	Louisville, Anchorage, La Grange.....	Louisville and Eastern R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	23.82	23.82	2,400,000	2,400,000	
9	Maysville.....	Maysville Street Railroad and Transfer Co.....	Jan. 1, 1907	Dec. 31, 1907	4.33	4.33	100,000	30,900	
10	Owensboro.....	Owensboro City R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	14.50	14.50	125,000	115,000	
11	Paducah.....	Paducah Traction Co. (Inc.).....	Jan. 1, 1907	Dec. 31, 1907	16.99	16.99	350,000	350,000	
12	Rumersett.....	Somerset Water, Light and Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	3.62	3.62	300,000	300,000	
13	Winchester.....	Winchester Railway, Light and Ice Co.....	Jan. 1, 1907	Dec. 31, 1907	1.29	1.29	100,000	100,000	

1 Amount apportioned to railway and electric-light departments

2 Includes electric-light plant.

3 Includes electric-light plant and permanent or other investments.

4 This company has also a floating debt.

5 Includes 32.54 miles in Illinois.

6 Stock not all outstanding the entire year.

7 Includes permanent or other investments.

8 Includes 1.50 miles in Nebraska.

9 Includes electric-light plant. This company has also a floating debt.

10 Includes 20.30 miles leased from steam railroad.

11 Includes 1 mile leased from steam railroad and 3 miles lying outside of state, but exclusive of 58.44 miles in state owned by outside companies. Total operated in state, 305.72 miles.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
1 \$834,000	1 \$834,000							1 \$700,000	1 \$700,000	5	1 \$1,534,000	800,235	5
450,000	445,000	4	\$17,800					250,000	205,000	5	650,000	32,598	6
1,700,000	1,700,000			\$300,000	\$300,000	5	\$15,000	2,000,000	800,000	5	2,800,000	92,131	7
10,000	10,000	6	600								10,000		7a
125,000	125,000							20,000	20,000	6	145,000	90,025	8
600,000	600,000							600,000	156,000	6	1,556,000	48,774	9
1,500,000	1,500,000			800,000	554,200			2,000,000	1,050,000	6	3,104,200	84,468	10
2,500,000	2,500,000	9 1/2	\$177,500					1,375,000	1,375,000	5 1/2	3,875,000	56,159	11
2,750,000	1,055,000			250,000	250,000			3,000,000	2,923,000	5 1/2	4,228,000	52,751	12
1,200,000	1,160,000			727,000	727,000			1,100,000	1,100,000	5	2,300,000	31,934	13
655,000	655,000							650,000	650,000	5	2,032,000	116,390	14
100,000	100,000	4	4,000					25,000	17,000	5	117,000	29,250	15
400,000	400,000							235,000	235,000	5	1,635,000	97,002	16
250,000	250,000							150,000	150,000	6	1,400,000	108,093	17
200,000	200,000							100,000	70,000	6	270,000	15,917	18
300,000	300,000			300,000	300,000			400,000	384,000	5	1,684,000	82,000	19
200,000	200,000							300,000	200,000	5	1,500,000	88,307	20
500,000	139,344										1,139,344		20a
1,000,000	1,000,000			500,000	500,000			1,500,000	1,200,000	5	2,700,000	220,709	21
1,200,000	1,200,000							750,000	750,000	5	1,950,000	42,391	22
80,000	80,000	2	1,600					26,000	25,000	6	1,105,000	35,000	23
1,200,000	1,200,000							630,000	620,000	5	1,820,000	45,890	24
13,612,000	8,125,785		52,400	400,000	400,000		28,000	15,171,000	6,180,800		14,716,585	115,917	
100,000	50,000							350,000	350,000	6	1,000,000	9,091	1
500,000	484,000			400,000	400,000	7	28,000	120,000	115,000	5	1,184,000	131,556	2
1280,000	1280,000										115,000	17,000	3
100,000	40,233							100,000	50,000	8	90,233	10,879	4
100,000	23,402	2	400					180,000	180,000	7	1,203,402	34,216	5
450,000	240,000							500,000	260,000	5	600,000	22,145	6
150,000	150,000							150,000	150,000	6	300,000	37,736	7
300,000	300,000	6	18,000					60,000	60,000	5	1,360,000	64,171	8
3,750,000	2,000,000							5,000,000	1,800,000	5	3,500,000	80,404	9
5,000,000	2,000,000							5,000,000	1,180,000	5	3,180,000	97,342	10
1,000,000	1,000,000							600,000	600,000	5	1,600,000	71,111	11
400,000	125,000							400,000			125,000	27,533	12
100,000	100,000							21,000	1,800	6	101,800	33,933	13
10,000	10,000										10,000	4,878	14
1,250,000	1,250,000	2	25,000					1,250,000	1,030,000	5	2,280,000	66,915	15
300,000	300,000	3	9,000					1,800,000	700,000	5	1,000,000	44,903	16
1417,000	1417,000										1417,000	2,720	17
13,670,000	12,757,400		490,738	3,300,000	3,290,000		126,200	21,380,000	15,736,000		31,773,400	118,454	
20,000	20,000							20,000	20,000	5	40,000	8,696	1
4,000,000	3,200,000	11	128,000					4,500,000	4,100,000	2 1/2	7,300,000	116,002	2
150,000	150,000							150,000	105,000	5	265,000	40,800	3
800,000	800,000							1,500,000	1,000,000	5 1/2	2,500,000	135,294	4
700,000	700,000							700,000	700,000	5	1,400,000	44,444	5
75,000	75,000			350,000	350,000			4,000,000	478,000	5	4,478,000	23,959	6
5,000,000	4,926,500	7 1/2	371,738	2,500,000	2,500,000	5	125,000	8,000,000	7,000,000	4 1/2, 5 1/2	14,456,500	88,630	7
2,000,000	2,000,000			400,000	400,000			650,000	650,000	5	3,050,000	128,044	8
100,000	20,900							65,000	20,000	4	1,50,900	11,755	9
75,000	75,000			50,000	40,000	6	\$1,200	200,000	200,000	5	315,000	21,724	10
250,000	250,000							1,200,000	598,000	6	1,998,000	55,708	11
300,000	300,000							205,000	205,000	6	1,505,000	197,020	12
100,000	100,000							100,000	100,000	5	200,000	155,099	13

^a Exclusive of 1 mile of track leased from steam railroad, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$551,123.

^b Amount apportioned to railway department.

^c Includes 1 mile leased from steam railroad.

^d Includes 3 miles in Missouri.

^e Cash investment.

^f Includes 3.77 miles leased from bridge companies and 1 mile lying outside of state, but exclusive of 14.21 miles in state owned by outside companies. Total operated in state, 402.34 miles.

^g Exclusive of 3.77 miles of track leased from bridge companies, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$384,292.

^h Includes 3.77 miles leased from bridge companies and 1 mile in Ohio.

ⁱ Construction work was in progress during year. This company has also a floating debt.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
LOUISIANA.								
Total for state.....					238.52		\$47,064,700	\$46,830,700
1	Alexandria.....	Alexandria Electric Rys. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.00	5.00	50,000	43,000
2	Baton Rouge.....	Baton Rouge Electric and Gas Co.....	Jan. 1, 1907	Dec. 31, 1907	3.94	3.94	80,000	80,000
3	Lake Charles.....	Lake Charles Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	7.65	7.65	50,000	50,000
4	Monroe.....	City of Monroe Water, Light, and Traction Department (municipal).	Jan. 1, 1907	Dec. 31, 1907	8.75	8.75		
5	New Orleans.....	St. Charles Street R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	20.00	23.09	1,000,000	953,300
6	do.....	Orleans R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	11.67	12.03	231,700	231,700
7	do.....	New Orleans Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907		120.16	30,000,000	30,000,000
7a	do.....	New Orleans City R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	119.28		7,500,000	7,500,000
8	do.....	New Orleans and Carrollton Railroad, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	35.11	35.11	7,100,000	7,100,000
9	do.....	New Orleans and Pontchartrain R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	8.62	8.90	350,000	348,700
10	New Orleans, Gretna.....	Algiers Railway and Lighting Co.....	Sept. 1, 1907	Dec. 31, 1907	4.50	4.50	500,000	330,000
11	Shreveport.....	Shreveport Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	14.00	14.00	200,000	200,000
MAINE.								
Total for state.....					424.01		11,380,000	10,944,713
1	Bangor, Brewer, Orono, Old Town, Hampden, Corinth, Charleston.....	Bangor Railway and Electric Co.....	July 1, 1906	June 30, 1907	62.52	62.52	1,500,000	1,500,000
2	Biddeford, Saco, Old Orchard, Brunswick, Freeport, Yarmouth.....	Biddeford and Saco R. R. Co.....	July 1, 1906	June 30, 1907	8.15	8.15	100,000	100,000
3	Brunswick, Freeport, Yarmouth.....	Portland and Brunswick Street Ry. Co.....	July 1, 1906	June 30, 1907	16.40	16.40	300,000	300,000
4	Calais, Milltown; St. Stephen (N. B., Canada).....	Calais Street Ry. Co.....	July 1, 1906	June 30, 1907	7.10	7.10	100,000	100,000
5	Fairfield.....	Fairfield and Shawmut Ry. Co.....	Sept. 3, 1907	Dec. 31, 1907	3.20	3.20	20,000	20,000
6	Fairfield, Benton.....	Benton and Fairfield Ry. Co.....	July 1, 1906	June 30, 1907	4.67	4.67	20,000	20,000
7	Fryeburg.....	Fryeburg Horse R. R. Co.....	July 1, 1906	June 30, 1907	3.00	3.00	250,000	5,175
8	Lewiston, Auburn, Mechanic Falls, Winthrop, Augusta, Gardiner, Brunswick, Bath, Norway, South Paris.....	Lewiston, Augusta and Waterville Street Ry. ¹¹	July 1, 1906	June 30, 1907	84.09	84.09	3,075,000	3,000,000
9	Norway, South Paris.....	Norway and Paris Street Ry.....	July 1, 1906	June 30, 1907	2.14	2.14	25,000	25,000
10	Portland, Gorham, Cape Elizabeth, Old Orchard, Saco, Yarmouth.....	Portland R. R. Co.....	July 1, 1906	June 30, 1907	94.43	94.43	2,000,000	1,998,538
11	Rockland, Thomaston, Warren, Rockport, Camden.....	Rockland, Thomaston and Camden Street Ry.....	July 1, 1906	June 30, 1907	23.82	23.82	400,000	400,000
12	Rockland, South Thomaston.....	Rockland, South Thomaston and Owl's Head Ry.....	July 1, 1906	June 30, 1907	4.20	4.20	35,000	35,000
13	Sanford, Springvale, Kennebunk, Cape Porpoise, Kennebunkport, Biddeford, Wells, Ogunquit, York, Kittery, Ebbot, South Berwick, Portsmouth, Dover (N. H.).....	Atlantic Shore Line Ry.....	July 1, 1906	June 30, 1907	77.91	77.91	3,000,000	3,000,000
14	Skowhegan, Madison.....	Somerset Traction Co.....	July 1, 1906	June 30, 1907	12.68	12.68	200,000	20,000
15	Turner, Lewiston, Auburn.....	Auburn and Turner R. R. Co.....	July 1, 1906	June 30, 1907	9.07	12.50	100,000	100,000
16	Waterville, Fairfield.....	Waterville and Fairfield Railway and Light Co.....	July 1, 1906	June 30, 1907	5.00	5.00	200,000	200,000
17	Waterville, Oakland.....	Waterville and Oakland Street Ry.....	July 1, 1906	June 30, 1907	5.75	5.75	100,000	100,000
MARYLAND.								
Total for state.....					536.18		41,190,000	17,410,550
1	Baltimore, Emory Grove, Brooklyn, Ellicott City, Sparrows Point, Towson, Parkville, Cumberland.....	United Railways and Electric Co. of Baltimore ¹²	Jan. 1, 1907	Dec. 31, 1907	413.19	413.19	38,000,000	15,055,000
2	Cumberland.....	Cumberland Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	7.20	7.20	100,000	100,000
3	Cumberland, Frostburg, Westport.....	Cumberland and Westernport Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	25.66	25.66	1,000,000	625,000
4	Frederick, Middletown, Myersville.....	Frederick and Middletown R. R. Co.....	Dec. 1, 1906	Nov. 30, 1907	9.72	20.14	250,000	250,000
4a	Myersville and Catoctin Ry. Co. (lessor)	Myersville and Catoctin Ry. Co. (lessor)	Dec. 1, 1906	Nov. 30, 1907	5.28		25,000	22,500
4b	Jefferson and Braddock Heights Ry. Co. (lessor)	Jefferson and Braddock Heights Ry. Co. (lessor)	Dec. 1, 1906	Nov. 30, 1907	5.14		75,000	75,000
5	Hagerstown, Beaver Creek, Boonsboro.....	Hagerstown and Boonsboro Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	10.15	12.15	120,000	120,000
6	Hagerstown, Beaver Creek, Myersville.....	Hagerstown and Myersville Ry. Co.....	May 1, 1907	Apr. 30, 1908	7.50	17.50	120,000	120,000
7	Hagerstown, Shady Grove (Pa.).....	Hagerstown and Northern Ry. Co. ¹³	May 1, 1907	Apr. 30, 1908	10.10	10.60	200,000	200,000
8	Hagerstown, Williamsport, Finksstown.....	Hagerstown Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	13.70	13.70	200,000	200,000

¹ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$28,657,234.

² Includes electric-light plant. This company has also a floating debt.

³ This company has also a floating debt.

⁴ Includes electric-light plant.

⁵ Semiannual dividends of 1½ and 2 per cent. Common stock largely owned by New Orleans Railway and Light Co., on which no dividends were paid.

⁶ Preferred stock largely owned by New Orleans Railway and Light Co., on which no dividends were paid.

⁷ Bonds not yet issued. (See Note 3.)

⁸ Includes 5.94 miles lying outside of state. Total operated in state, 418.12 miles.

⁹ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,000,673.

¹⁰ Includes 4.05 miles in Canada.

¹¹ On April 30, 1907, this company purchased and consolidated the Lewiston, Brunswick and Bath Street Ry. and Augusta, Winthrop and Gardiner Street Ry., which are included in this report.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$29,764,700	\$29,708,700		\$454,904	\$17,300,000	\$17,130,000		\$544,315	\$46,274,000	\$29,145,000		\$75,984,700	\$198,681	
50,000	43,000							100,000	63,000	6	106,000	21,200	1
80,000	80,000							45,000	33,000	5	113,000	28,680	2
50,000	50,000										50,000	6,536	3
								130,000	107,000	5	107,000	12,229	4
1,000,000	953,300	6	57,198					000,000	375,000	4	1,328,300	68,415	5
234,700	234,700							400,000	400,000	6	634,700	54,387	6
20,000,000	20,000,000			10,000,000	10,000,000	34	312,500	20,000,000	16,219,000	44,6	46,219,000	502,356	7
5,000,000	5,000,000	34	\$ 2,706	2,500,000	2,500,000	5	\$ 1,835	8,000,000	6,202,000	44,5,6	13,702,000		7a
2,500,000	2,500,000	15	375,000	4,000,000	4,000,000	5	230,000	5,549,000	5,549,000	5,6	12,649,000	360,268	8
230,000	348,700							350,000	(?)		348,700	40,452	9
300,000	300,000			200,000	30,000			300,000	(?)		330,000	73,333	10
200,000	200,000	10	20,000					200,000	197,000	5	397,000	28,357	11
10,325,000	9,909,713		164,944	1,035,000	1,035,000		1,750	15,613,000	11,039,000		21,983,713	\$ 49,461	
1,500,000	1,500,000	5	75,000					2,600,000	1,655,000	5	3,155,000	50,464	1
100,000	100,000	5	5,000					300,000	150,000	4	250,000	30,675	2
300,000	300,000							225,000	225,000	5	625,000	32,012	3
100,000	100,000							100,000	100,000	5	200,000	28,199	4
30,000	30,000							30,000	30,000	5	60,000	18,750	5
20,000	20,000										20,000	4,283	6
250,000	5,175										5,175	1,725	7
3,000,000	3,000,000							5,000,000	3,000,000	4,5,6	6,000,000	71,352	8
125,000	125,000							18,000	18,000	5	42,000	20,093	9
2,000,000	1,809,538	4	79,944					3,000,000	2,250,000	34,44,5	4,249,538	45,002	10
400,000	400,000	5	20,000					600,000	600,000	4	1,300,000	50,378	11
35,000	35,000							175,000	175,000		210,000	50,000	12
2,000,000	2,000,000			1,000,000	1,000,000			3,000,000	2,071,000	4,44,5,6	5,071,000	65,088	13
200,000	30,000							75,000	75,000	5	105,000	8,281	14
65,000	65,000			35,000	35,000	5	1,750	125,000	125,000	5	225,000	25,000	15
200,000	200,000							240,000	240,000	5,6	440,000	88,000	16
100,000	100,000	5	5,000					125,000	125,000	5	225,000	39,190	17
27,190,000	17,355,550		5,000	14,000,000	55,000			65,127,000	30,000,000		76,419,550	136,923	
24,000,000	15,000,000			14,000,000	55,000			62,240,000	46,912,000	4,44,5,6	71,967,000	174,174	1
100,000	100,000	5	5,000					100,000	100,000	5	200,000	27,778	2
1,000,000	625,000							687,000	687,000	5,6	1,312,000	51,130	3
250,000	250,000							250,000	250,000	5	500,000		4
25,000	22,500							35,000	35,000	5	57,500	35,120	4a
75,000	75,000							75,000	75,000	5	150,000		4b
120,000	120,000							120,000	110,000	5	230,000	22,660	5
120,000	120,000							120,000	120,000	5	240,000	32,000	6
200,000	200,000							200,000	200,000	5	400,000	39,404	7
200,000	200,000							200,000	200,000	6	400,000	29,197	8

¹² This company had 50 miles of additional track under construction.¹³ Amount apportioned to railway department.¹⁴ Includes 2.80 miles in New Hampshire.¹⁵ Includes 5 miles lying outside of state, but exclusive of 20.33 miles in state owned by outside companies. Total operated in state, 551.51 miles.¹⁶ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$3,004,039.¹⁷ Includes Baltimore, Sparrows Point and Chesapeake Ry. Co. owned by this company and the Maryland Electric Railways Co., a steam road in course of electrification.¹⁸ Includes Morrison Land Company bonds, \$12,000.¹⁹ Cars operated by another company at terminus of road owned.²⁰ Under construction and operated by construction company.²¹ Includes 5 miles in Pennsylvania.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
MARYLAND—Continued.								
9	Hamilton, Carney.....	Baltimore and Bel Air Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.27	3.27	\$500,000	\$43,050
10	Kensington, Chevy Chase.....	Kensington Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	2.53	2.53	25,000	25,000
	Washington (D. C.); Takoma.....	Baltimore and Washington Transit Co.						
	Washington (D. C.); Glen Echo.....	Washington and Glen Echo R. R. Co.						
11	Washington (D. C.); Berwyn, Laurel.....	Washington, Berwyn, and Laurel Electric R. R. Co.	Oct. 1, 1906	Sept. 30, 1907	9.00	*9.00	500,000	500,000
12	Washington (D. C.); Bethesda, Rockville.....	Washington and Rockville Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	10.83	*10.83	50,000	50,000
13	Washington (D. C.); Woodside, Forest Glen.....	Washington, Woodside and Forest Glen Railway and Power Co.	Jan. 1, 1907	Dec. 31, 1907	2.91	*2.91	25,000	25,000
MASSACHUSETTS.								
Total for state.					\$2,896.85		83,013,350	74,460,175
1	Amesbury, Salisbury.....	Amesbury and Hampton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	8.75	8.75	100,000	100,000
2	Arlington, Lexington, Waltham, Woburn, Bedford, Billerica, Concord.....	Lexington and Boston Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	132.73	32.73	525,000	525,000
3	Attleborough, North Attleborough, Plainville, Seekonk.....	Interstate Consolidated Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	22.78	22.78	275,000	275,000
4	Ayer, Groton, Westford, Chelmsford.....	Lowell and Fitchburg Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	18.28	18.28	275,000	275,000
5	Boston, Brockton, Dedham, Fall River, Hingham, Hull, Middleborough, Milton, Needham, New Bedford, Quincy, Seekonk, Stoughton, Taunton, Walpole, Newport (R. I.).	Old Colony Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	*377.29	371.62	7,712,290	7,712,200
5a		Newport and Fall River Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	*20.50		900,000	900,000
6	Boston, Arlington, Chelsea, Everett, Lowell, Malden, Medford, Melrose, North Reading, Reading, Woburn, and Essex County; Nashua (N. H.).	Boston and Northern Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	479.32	234.05	11,042,200	11,043,200
6a		East Middlesex Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	19.39		300,000	297,700
6b		Boston and Chelsea R. R. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	4.34		300,000	121,000
6c		Winnamisset R. R. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	2.19		75,000	50,000
6d		Boston and Revere Electric Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	3.79		50,000	50,000
6e		Nashua Street Ry. (lessor).	July 1, 1906	June 30, 1907	*15.52		225,000	300,000
7	Boston, Arlington, Belmont, Brookline, Cambridge, Chelsea, Everett, Malden, Medford, Newton, Somerville, Watertown.....	Boston Elevated Ry. Co. ¹	Oct. 1, 1906	Sept. 30, 1907	*422.10	455.65	20,000,000	13,300,000
7a		West End Street Ry. Co. (lessor) ²	Oct. 1, 1906	Sept. 30, 1907	384.63		16,509,250	16,509,250
7b		Somerville Horse R. R. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	8.03		153,000	153,000
8	Canton, Stoughton, Milton, Cheshire, Adams, North Adams, Williamstown, Pittsfield, Lenox, Stockbridge, Great Barrington.....	Blue Hill Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	19.59	19.77	230,000	300,000
9		Berkshire Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	70.94	70.94	1,648,100	1,648,100
10	Cohasset, Hingham, Hull.....	New York, New Haven and Hartford R. R. Co. (Nantasket division).	Oct. 1, 1906	Sept. 30, 1907 ³	17.13	17.13	(*)	(*)
11	Concord, Acton, Maynard, Hudson.....	Concord, Maynard and Hudson Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	14.81	15.16	175,000	175,000
12	Conway, Deerfield.....	Conway Electric Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	6.43	6.43	100,000	100,000
13	Cottage City (Oak Bluffs), Tisbury.....	Cottage City and Edgartown Traction Co.	Oct. 1, 1906	Sept. 30, 1907 ⁴	5.85	6.95	60,000	60,000
13a		Martha's Vineyard Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	1.10		150,000	8,000
14	Dedham, Dover, Medfield, Walpole.....	Dedham and Franklin Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	9.45	9.45	75,000	75,000
15	Deerfield, Greenfield, Northampton, Montague, Hatfield, Amherst.....	Connecticut Valley Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	47.30	47.30	500,000	500,000
16	Rehoboth, Swansea, Seekonk, Duxbury.....	Providence and Fall River Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	12.53	12.53	165,000	165,000
17	Fall River, Westport, New Bedford, Dartmouth.....	Lowell and Pelham Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	3.32	3.32	40,000	40,000
18		Dartmouth and Westport Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	18.05	20.00	262,500	262,500
19	Fitchburg, Leominster, Lunenburg, Ayer, Harvard.....	Fitchburg and Leominster Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	40.70	40.70	500,000	450,000
20	Frammingham, Marlborough, Hudson, Natick, Newton, Westborough, Northborough, Shrewsbury.....	Boston and Worcester Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	79.06	79.58	1,725,000	1,725,000

¹ This company has also a floating debt.² Not operated during census year.³ Not operated during census year. Cars rented to other companies.⁴ Cars operated by another company at termination of road owned.⁵ Includes 1.24 miles leased from a manufacturing company, 2.36 miles not operated, and 36.11 miles lying outside of state; but exclusive of 9.72 miles in state owned by outside companies. Total operated in state, 2,551.11 miles.⁶ Exclusive of 1.24 miles of track leased from a manufacturing company, and 17.13 miles for which no capitalization was reported, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,110,829.⁷ Includes 0.37 mile held under lease or contract but not operated.⁸ Includes 26.26 miles leased to and operated by Boston Elevated Ry. Co.⁹ Includes electric-light plant. This company has also a floating debt.¹⁰ Entire trackage (30.51 miles) in Rhode Island.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$500,000	\$43,050							\$500,000			1 \$43,050	\$13,165	9
25,000	25,000							15,000	\$15,000	5	40,000	15,810	10
500,000	500,000							500,000	220,000	5	720,000	80,000	11
50,000	50,000							45,000	45,000	5	195,000	8,772	12
25,000	25,000							40,000	40,000	6	165,000	22,337	13
76,613,350	68,060,175		\$3,277,689	\$6,400,000	\$6,400,000		\$512,000	72,257,500	60,279,000		134,739,175	\$46,583	
100,000	100,000							100,000	100,000	5	1 200,000	22,857	1
525,000	525,000							500,000	500,000	4 1/2	1 1,025,000	31,317	2
275,000	275,000										1 275,000	12,072	3
275,000	275,000							275,000	275,000	5	1 550,000	30,088	4
7,712,200	7,712,200	4	308,488					7,501,500	7,501,500	4 1/2, 5.0	* 15,213,700		5
												42,383	
900,000	900,000	6	54,000					830,500	749,500	4 1/2, 5.6	1 649,500		5a
11,043,200	11,043,200	5	552,160					10,332,500	10,332,500	4, 5, 6	* 21,375,700		6
300,000	297,700	10	29,770					220,000	220,000	4, 5	517,700	43,040	6a
300,000	121,000	6	7,260								121,000		6b
75,000	50,000	6	3,000								50,000		6c
50,000	50,000	5	2,500					50,000	14,500	5	64,500		6d
325,000	300,000	6	18,000					150,000	150,000	4	450,000		6e
20,000,000	13,300,000	6	796,000					20,000,000	8,600,000	4	* 21,800,000		7
												1125,267	
10,100,250	10,100,250	7	10,082,948	6,400,000	6,400,000	8	512,000	15,967,000	15,967,000	4, 4 1/2	32,476,250		7a
153,000	153,000	6	9,180								153,000		7b
300,000	300,000							500,000	250,000	5	1 550,000	28,076	8
1,648,100	1,648,100							1,400,000	1,400,000	4, 5	* 13,048,100	42,987	9
(*)	(*)			(*)	(*)			(*)	(*)		(*)		10
175,000	175,000							175,000	165,000	5	1340,000	22,957	11
100,000	100,000							75,000	75,000	6	1 175,000	27,216	12
60,000	60,000										60,000		13
150,000	8,000										8,000	9,784	13a
75,000	75,000							100,000	100,000	5	175,000	18,519	14
500,000	500,000	2	9,948					500,000	500,000	5	1 1,000,000	21,142	15
165,000	165,000							165,000	165,000	5	1 330,000	26,337	16
40,000	40,000							40,000	40,000	5	80,000	24,086	17
262,500	262,500	8	21,000					90,000	90,000	5	352,500	19,529	18
500,000	450,000	6	27,000					430,000	400,000	4 1/2, 5	1 850,000	20,885	19
1,725,000	1,725,000	6	103,500					1,716,000	1,716,000	4 1/2, 5	1 3,441,000	43,524	20

* Includes permanent or other investments. This company has also a floating debt.

¹⁰ Entire trackage (15.32 miles) in New Hampshire.

¹¹ The Boston Elevated leases the East Boston tunnel from the city of Boston. Track in tunnel reported as owned by Boston Elevated.

¹² Includes 8.98 miles owned but not operated.

¹³ Includes permanent or other investments.

¹⁴ Exclusive of cost of subway and tunnel owned by city of Boston, \$7,542,584; including this the total liability was \$142,786.

¹⁵ The West End Street Ry. Co. leases the subway from the city of Boston. Track in subway reported as owned by West End Street Ry.

¹⁶ Dividends not paid on entire amount outstanding.

¹⁷ Operations largely confined to summer season.

¹⁸ Capitalization included in that of steam railroad.

STREET AND ELECTRIC RAILWAYS.

TABLE 183. NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
MASSACHUSETTS—Cont'd.								
21	Gardner, Westminster, Fitchburg.	Gardner, Westminster and Fitchburg Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	16.28	16.28	\$185,000	\$185,000
22	Haverhill.	Haverhill and Southern New Hampshire Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	8.19	8.24	80,000	80,000
23	do.	Haverhill and Plaistow Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	2.76	2.76	20,000	30,000
24	Haverhill, Merrimac, Amesbury, Haverhill, Newburyport.	Haverhill and Amesbury Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	27.39	28.41	150,000	150,000
25	Holyoke, Chicopee, Granby, Amherst, Pelham, Northampton, Sunderland.	Holyoke Street Ry. Co. ¹	Oct. 1, 1906	Sept. 30, 1907	67.74	68.74	980,000	980,000
25a	Hopkinton, Westborough.	Mount Tom R. R. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	1.00		100,000	100,000
26		Westborough and Hopkinton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	6.43	6.43	40,000	40,000
27	Lawrence, Methuen.	Lawrence and Methuen Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	12.98	13.18	150,000	150,000
28	Lynn, Nahant.	Nahant and Lynn Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	6.04	6.04	100,000	100,000
29	Mansfield, Foxborough, Wrentham, Walpole, Norwood.	Norfolk and Bristol Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	21.51	21.80	200,000	200,000
30	Marlborough, Westborough, North Grafton.	Marlborough and Westborough Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	13.86	13.86	160,000	160,000
31	Maynard, Acton.	Lowell, Acton and Maynard Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	1.98	1.98	20,000	20,000
32	Medford, Medway, Franklin.	Medford and Medway Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	11.25	11.25	100,000	100,000
33	Milford, Franklin, Wrentham, Plainville.	Milford, Attleborough and Woonsocket Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	30.52	30.52	315,000	315,000
34	Milford, Uxbridge, South Framingham, Medway, Hellingham, Hopkinton.	Milford and Uxbridge Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	35.91	35.93	441,500	440,000
35	Natick, Wellesley, Needham, Wayland, Framingham.	Natick and Cohasset Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	18.76	18.76	100,000	100,000
36	Natick, Framingham, Sherborn, Hopkinton.	Middlesex and Boston Street Ry. Co.	Aug. 15, 1907	Sept. 30, 1907	15.90	16.07	300,000	300,000
37	New Bedford, Fairhaven, Dartmouth.	Union Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	31.88	32.08	900,000	900,000
38	New Bedford, Mattapoisett, Marion, Wareham, Middleborough, Bourne.	New Bedford and Onset Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	44.12	44.12	550,000	550,000
39	Newburyport, Amesbury, Newbury.	Citizens Electric Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	17.85	18.42	240,000	240,000
40	Newton, Needham, Watertown.	Newton and Boston Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	9.75	15.45	250,000	200,000
40a		Newtonville and Watertown Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	4.67		100,000	50,000
41	Newton, Waltham, Watertown.	Newton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	37.73	44.51	907,000	722,000
41a		Waltham Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	5.55		100,000	100,000
42	Northampton, Easthampton, Williamsburg.	Northampton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	26.57	26.57	300,000	300,000
43	Norton, Attleborough, Mansfield, Easton, Taunton.	Norton and Taunton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	30.07	30.48	297,000	297,000
44	Orange, Athol.	Athol and Orange Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	7.13	7.13	74,500	74,500
45	Pittsfield, Lanesborough, Cheshire, Dalton, Hinsdale.	Pittsfield Electric Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	29.37	29.37	300,000	300,000
46	Plymouth.	Plymouth and Sandwich Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.36	6.36	60,000	36,800
47	Plymouth, Kingston, Pembroke, Whitman.	Brookton and Plymouth Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	24.05	24.05	405,000	226,000
48	Sharon, Norwood.	Norwood, Canton and Sharon Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	8.28	6.28	125,000	125,000
49	Shelburne, Colrain.	Shelburne, Falls and Colrain Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	7.01	7.01	50,000	50,000
50	Springfield, Chicopee, Longmeadow, East Longmeadow, Agawam, Palmer, Ware, Monson, Brimfield.	Springfield Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	99.53	142.34	2,258,100	2,258,100
50a		Springfield and Eastern Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	42.81		900,000	900,000
51	Stoughton, Randolph.	Bristol and Norfolk Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	6.32	6.70	100,000	100,000
52	Taunton, Lakeville, Middleborough.	East Taunton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	10.70	11.42	110,000	110,000
53	Taunton, Attleborough, Seekonk.	Taunton and Pawtucket Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	17.62	18.78	100,000	100,000
54	Templeton, Gardner, Athol, Phillipston.	Templeton Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	18.39	18.39	75,000	75,000
55	Uxbridge, Blackstone, Northbridge.	Uxbridge and Blackstone Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	9.89	9.89	120,000	120,000
56	Ware, West Brookfield, New Braintree, Haverhill.	Ware and Brookfield Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	12.12	12.12	100,000	100,000
57	Warren, West Warren, Brookfield, North Brookfield, Spencer.	Warren, Brookfield and Spencer Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	20.10	20.10	220,000	150,000
58	Westfield, West Springfield, Russell.	Western Massachusetts Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	27.05	27.05	550,000	550,000
59	Whitinsville, Linwood.	Linwood Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	1.90	1.90	12,000	12,000
60	Worcester, West Boylston, Leominster, Fitchburg, Clinton, Hudson, Grafton, Spencer.	Worcester Consolidated Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	138.28	167.69	4,345,000	3,550,000
60a		Worcester and Shrewsbury Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	.86		20,000	20,000
60b		North End Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	5.12		110,000	110,000
60c		Worcester and Shrewsbury R. R. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	3.25		40,000	38,825

¹ This company has also a floating debt.² Includes Amherst and Sunderland Street Ry. Co. and Hampshire Street Ry. Co.; the former was operated independently and the latter under lease during part of the census year.³ Dividends not paid on entire amount outstanding.⁴ Cars operated by another company at termini of road owned.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$185,000	\$185,000							\$185,000	\$185,000	5	\$370,000	\$22,727	21
80,000	80,000							80,000	80,000	5	100,000	19,536	22
30,000	30,000							30,000	30,000	5	60,000	21,739	23
150,000	150,000							490,000	490,000	5.5	1,640,000	23,366	24
980,000	980,000	8	\$64,000					717,000	717,000	5	1,697,000		25
100,000	100,000	6	6,000								100,000	26,142	26a
40,000	40,000							40,000	40,000	5	80,000	12,442	26
150,000	150,000							125,000	125,000	5	275,000	21,219	27
100,000	100,000							75,000	75,000	5	1,175,000	28,974	28
200,000	200,000										1,200,000	9,298	29
160,000	160,000							180,000	100,000	5	1,320,000	22,088	30
20,000	20,000										1,20,000	10,101	31
100,000	100,000							100,000	100,000	5	1,200,000	17,778	32
315,000	315,000							250,000	250,000	5	565,000	18,512	33
441,500	440,000	3	13,200					415,000	415,000	5	1,855,000	23,810	34
100,000	100,000	2	2,000								1,100,000	5,330	35
300,000	300,000	1	3,000					100,000	100,000	5	1,400,000	25,157	36
900,000	900,000	8	72,000					400,000	400,000	5	1,300,000	40,778	37
550,000	550,000							430,000	430,000	4.5	980,000	22,212	38
240,000	240,000	5	12,000					230,000	223,000	5	1,463,000	25,938	39
250,000	200,000	7½	3,600					200,000	200,000	5	1,400,000		40
100,000	50,000										1,50,000	31,207	40a
907,000	722,000	2½	18,060					575,000	575,000	5	1,297,000		41
100,000	100,000							100,000	100,000	5	200,000		41a
300,000	300,000	7	21,000					225,000	225,000	4½, 5	525,000	19,750	42
297,000	297,000							296,000	236,000	5	1,602,000	19,721	43
74,500	74,500	8	5,960					60,000	60,000	5	134,500	18,864	44
300,000	300,000	6	18,000					300,000	300,000	4	600,000	20,429	45
60,000	36,800										1,26,800	5,786	46
405,000	286,000							335,000	285,000	4½, 5	1,600,000	24,532	47
125,000	125,000										1,125,000	19,904	48
50,000	50,000							50,000	50,000	6	100,000	14,295	49
2,258,100	2,258,100	8	188,680					1,600,000	1,500,000	4	3,768,100		50
												35,044	
900,000	900,000	4	20,100					330,000	330,000	5	1,230,000		50a
100,000	100,000							75,000	70,000	5	170,000	20,899	51
110,000	110,000	5	5,600					45,000	45,000	5	155,000	14,486	52
100,000	100,000							200,000	200,000	5	1,300,000	17,025	53
75,000	75,000										1,75,000	4,078	54
120,000	120,000	2	1,620					80,000	80,000	5	1,200,000	20,222	55
100,000	100,000							135,000	135,000	5	235,000	19,389	56
220,000	150,000							125,000	125,000	8	1,275,000	13,682	57
550,000	550,000							275,000	275,000	5	1,825,000	30,490	58
12,000	12,000	0	720								12,000	18,182	59
4,345,000	3,550,000	5½	195,250					1,000,000	1,000,000	4½, 5, 6	14,610,000		60
20,000	20,000	5	1,000								20,000	29,150	60a
110,000	110,000	3½	4,125					75,000	75,000	5	185,000		60b
40,000	36,825	7½	2,650					22,000	22,000	5	58,825		60c

a Includes \$150,000 bonds of Middleborough, Wareham and Buzzards Bay Street Railway.

b Part 12.63 miles leased to Boston Elevated.

c Stock not all outstanding the entire year.

d Includes 1.34 miles leased from a manufacturing company.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From.	To.	Owned.	Operated.	Total per value.	
							Authorized.	Outstanding.
MASSACHUSETTS—Cont'd.								
61	Worcester, Millbury, Northbridge, Whitinsville.	Worcester and Blackstone Valley Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	16.36	17.86	\$300,000	\$300,000
62	Worcester, Oxford, Charlton, Southbridge, Fiskdale, Webster, Brimfield.	Worcester and Southbridge Street Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	30.71	58.01	750,000	750,000
62a		Webster and Dudley Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	5.84		50,000	50,000
62b		Worcester and Webster Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	15.81		150,000	150,000
62c		Hartford and Worcester Street Ry. Co. (lessor).	Oct. 1, 1906	Sept. 30, 1907	1.72		300,000	\$ 138,000
63	Worcester, Holden, Jefferson.....	Worcester and Holden Street Ry. Co.....	Oct. 1, 1906	Sept. 30, 1907	10.37	12.50	150,000	150,000
MICHIGAN.								
Total for state.....					\$1,275.03		40,780,000	38,607,400
1	Adrian.....	Adrian Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.06	4.06	30,000	30,000
2	Bay City, Essexville.....	Bay City Traction and Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	23.42	23.42	1,500,000	1,500,000
3	Benton Harbor, St. Joseph, Eau Claire.	Benton Harbor-St. Joe Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	28.50	28.50	1,000,000	900,000
4	Detroit and vicinity, Flint, Pontiac, Wyandotte, Romeo.	Detroit United Ry.....	Jan. 1, 1907	Dec. 31, 1907	398.46	398.46	12,500,000	12,500,000
5	Detroit, Mount Clemens, Algoma, Marine City, St. Clair, Port Huron.	Detroit and Port Huron Shore Line Ry..	Jan. 1, 1907	Dec. 31, 1907	127.72	127.72	2,000,000	2,000,000
6	Detroit, Ypsilanti, Ann Arbor, Jackson, Salline, Northville.	Detroit, Jackson and Chicago Ry.....	Jan. 1, 1907	Dec. 31, 1907	104.86	104.86	25,000	25,000
7	Detroit, Monroe, Toledo (Ohio).	Detroit, Monroe and Toledo Short Line Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	74.46	74.46	3,000,000	2,434,000
8	Escanaba.....	Escanaba Electric Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	8.79	8.79	50,000	50,000
9	Grand Rapids and suburbs.....	Grand Rapids Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	61.96	61.96	4,000,000	3,500,000
10	Grand Rapids, Grand Haven, Muskegon.	Grand Rapids, Grand Haven and Muskegon Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	42.90	42.31	1,200,000	1,200,000
11	Grand Rapids, Holland, Saugatuck.	Grand Rapids, Holland and Chicago Ry.	July 1, 1906	June 30, 1907	76.60	76.60	1,350,000	1,326,200
12	Houghton, Hancock, Lake Linden, Calumet.	Houghton County Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	27.04	27.04	1,250,000	964,200
13	Ironwood, Hurley (Wis.).....	Twin City General Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	4.60	4.60	400,000	400,000
14	Ishpeming, Negaunee.....	Marquette County Gas and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	4.67	4.67	750,000	750,000
15	Jackson, Grass Lake.....	Jackson Consolidated Traction Co.....	July 1, 1906	June 30, 1907	31.00	31.00	1,000,000	1,000,000
16	Jackson, Battle Creek, Kalamazoo, Lansing, St. Johns.	Michigan United Rys. Co.....	July 1, 1906	June 30, 1907	146.86	146.86	5,000,000	5,000,000
17	Manistee, East Lake, Filer City.	Manistee Light and Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	9.80	9.80	1,615,000	1,000,000
18	Marquette.....	Marquette City and Presque Isle Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.00	6.00	200,000	188,000
19	Menominee, Marinette (Wis.)....	Menominee and Marinette Light and Traction Co.	July 1, 1906	June 30, 1907	17.90	17.90	560,000	560,000
20	Muskegon, Muskegon Heights....	Muskegon Traction and Lighting Co....	Jan. 1, 1907	Dec. 31, 1907	14.32	14.32	700,000	663,000
21	Owosso, Corunna.....	Owosso and Corunna Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	5.10	5.10	150,000	150,000
22	Saginaw, Bridgeport, Frankenth.	Detroit, Flint and Saginaw Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	12.23	13.75	1,000,000	965,000
23	Saginaw, Bay City, and vicinity.	Saginaw Valley Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	33.92	37.08	1,100,000	1,100,000
24	St. Joseph, Sault Ste. Marie.....	Southern Michigan Ry. Co. (See Indiana). Trans-St. Mary's Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	7.55	7.55	400,000	400,000
MINNESOTA.								
Total for state.....					\$457.15		27,050,000	23,905,000
1	Duluth.....	Interstate Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	3.16	3.16	50,000	40,000
2	Duluth, Superior (Wis.).....	Duluth Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	75.10	75.10	1,500,000	300,000
3	Minneapolis, St. Paul, Stillwater, White Bear, South St. Paul, Excelsior.	Twin City Rapid Transit Co.....	Jan. 1, 1907	Dec. 31, 1907	263.87	263.87	25,000,000	23,100,000
4	St. Cloud, Sauk Rapids.....	Granite City Ry. Co.....	Aug. 1, 1906	July 31, 1907	8.50	8.50	100,000	100,000
5	Winona.....	Winona Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	6.52	6.52	400,000	365,000
MISSISSIPPI.								
Total for state.....					86.40		6,150,000	3,937,800
1	Columbus.....	Columbus Railway, Light and Power Co.	July 1, 1907	Dec. 31, 1907	4.57	4.57	300,000	300,000
2	Greenville.....	Delta Electric Light, Power and Manufacturing Co.	May 1, 1906	Apr. 30, 1907	5.00	5.00	100,000	65,000
3	Gulfport, Biloxi, Long Beach....	Gulfport and Mississippi Coast Traction Co.	July 1, 1906	June 30, 1907	24.87	24.87	2,000,000	1,000,000
4	Jackson.....	Jackson Electric Railway, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	13.00	13.00	250,000	250,000
5	Meridian.....	Meridian Light and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	12.00	12.00	2,000,000	865,700
6	Natchez.....	Southern Light and Traction Co.....	July 1, 1906	June 30, 1907	7.10	7.10	300,000	457,000
7	Scranton, Pascagoula, Moss Point.	Pascagoula Street Railway and Power Co.	Jan. 1, 1907	Dec. 31, 1907	9.70	9.70	500,000	500,000
8	Vicksburg.....	Vicksburg Railway and Light Co.....	July 1, 1906	June 30, 1907	10.16	10.16	500,000	500,000

¹ This company has also a floating debt.

² Stock subscription; issue not yet authorized by railroad commission.

³ Includes permanent or other investments. This company has also a floating debt.

⁴ Includes 13.35 miles lying outside of state, but exclusive of 62.03 miles in state owned by outside companies. Total operated in state, 1,323.71 miles.

⁵ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$6,539,663.

⁶ Includes electric-light plant.

⁷ Includes 2.08 miles in Ohio.

⁸ Includes 2.30 miles in Wisconsin.

⁹ Includes electric-light plant and permanent or other investments.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$200,000	\$200,000							\$200,000	\$200,000	4½	\$400,000	\$24,460	61
750,000	750,000							700,000	700,000	4½	\$1,450,000		62
50,000	50,000	5	\$2,500					30,000	30,000	5	\$80,000	36,760	62a
150,000	150,000							150,000	150,000	5	\$300,000		62b
300,000	\$158,000										\$158,000		62c
150,000	150,000							150,000	150,000	5	\$300,000	26,030	63
35,715,000	34,388,400		566,750	\$5,065,000	\$4,219,000		\$120,780	58,319,000	48,625,900		87,233,300	\$63,288	
30,000	30,000							75,000	75,000		\$105,000	25,862	1
1,500,000	1,500,000							1,500,000	1,201,000	5	\$2,701,000	115,329	2
1,000,000	900,000							1,200,000	700,000	5	\$1,600,000	56,140	3
12,500,000	12,500,000	3½	\$68,750					25,000,000	21,887,000	4½, 5	\$34,387,000	86,300	4
1,900,000	1,900,000			100,000	100,000			3,000,000	2,790,000	5, 6	4,790,000	37,504	5
25,000	25,000							4,000,000	3,930,000	5, 6	3,955,000	37,717	6
3,000,000	2,434,000							3,000,000	2,434,000	5	4,868,000	65,377	7
50,000	50,000										\$50,000	5,698	8
2,000,000	2,000,000	4	80,000	2,000,000	1,500,000	5	75,000	3,500,000	3,408,000	5	6,908,000	111,491	9
1,200,000	1,200,000							1,500,000	1,300,000	5	2,700,000	62,806	10
500,000	499,400			850,000	830,000			1,500,000	1,475,000	5	2,801,200	36,569	11
750,000	750,000			500,000	204,200	6	12,000	750,000	750,000	5	\$1,704,200	63,025	12
400,000	400,000	4½	18,000					138,000	138,000	5	\$538,000	116,957	13
750,000	750,000							500,000	316,400	5	\$1,016,400	228,351	14
1,000,000	1,000,000							1,000,000	712,000	5	\$1,712,000	55,226	15
4,000,000	4,000,000			1,000,000	1,000,000	3	30,000	7,500,000	4,000,000	5	\$9,000,000	60,459	16
1,500,000	985,000			115,000	115,000			600,000	500,000	5	\$1,500,000	153,061	17
200,000	200,000							78,000	78,000	5	\$278,000	66,333	18
500,000	500,000							201,000	201,000	5, 6	\$701,000	62,514	19
600,000	600,000			100,000	63,000	6	3,780	600,000	600,000	5	\$1,263,000	86,983	20
150,000	150,000							120,000	120,000	5	\$270,000	52,941	21
1,000,000	965,000							1,000,000	341,500	5	\$1,306,500	106,653	22
700,000	700,000			400,000	400,000			1,257,000	1,257,000	5	2,357,000	69,487	23
400,000	400,000							300,000	212,000	5	\$512,000	81,060	24
24,050,000	20,905,000		1,005,000	3,000,000	3,000,000		210,000	23,084,000	20,912,500		44,817,500	\$95,587	
50,000	40,000							150,000	110,000	5	\$150,000	47,408	1
1,500,000	300,000							2,500,000	2,500,000	5	\$2,800,000	57,284	2
22,000,000	20,100,000	5	1,005,000	3,000,000	3,000,000	7	210,000	20,484,000	17,900,000	5, 7	\$11,000,000	112,678	3
100,000	100,000							50,000	42,500	5	\$142,500	16,765	4
400,000	305,000							500,000	360,000	5	\$825,000	111,196	5
5,250,000	3,474,580			800,000	463,300			4,100,000	3,502,500		7,440,380	\$71,408	
				200,000	200,000			300,000	250,000	6	\$550,000	120,350	1
100,000	65,180							100,000	85,000	6	\$180,000	20,036	2
2,000,000	1,000,000							1,200,000	1,200,000	6	\$2,200,000	88,460	3
250,000	250,000							250,000	244,000	5	\$494,000	28,000	4
1,500,000	702,400			500,000	163,300			1,000,000	708,500	5	\$1,574,200	131,183	5
600,000	457,000							500,000	340,000	5	\$797,000	112,254	6
500,000	500,000							350,000	350,000	5	\$650,000	87,629	7
500,000	500,000							400,000	325,000	5	\$725,000	81,201	8

¹⁰ Includes 8.37 miles in Wisconsin.¹¹ Includes permanent or other investments.¹² Operated by receiver.¹³ Includes 21.76 miles lying outside of state, but exclusive of 2.43 miles in state owned by an outside company. Total operated in state, 437.82 miles.¹⁴ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,119,824.¹⁵ Includes 21.76 miles in Wisconsin.¹⁶ Includes electric-light plant. This company has also a floating debt.¹⁷ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,270,907.¹⁸ Includes 0.62 mile of sidings owned jointly with a lumber company.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.		
			From—	To—	Owned.	Operated.	Total par value.		
							Authorized.	Outstanding.	
MISSOURI.									
Total for state.....							1921.67	\$68,265,549	\$59,434,949
1	Cape Girardeau.....	Cape Girardeau-Jackson Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	4.50	4.50	300,000	300,000	
2	Carrollton.....	Water, Light and Transit Co.	Jan. 1, 1907	Dec. 31, 1907	1.40	1.40	150,000	143,000	
3	Farmington, De Lussus, Esther, Flat River.....	St. Francois County Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	14.03	14.03	300,000	300,000	
4	Hannibal, Oakwood.....	Hannibal Railway and Electric Co.	July 1, 1906	June 30, 1907	7.00	7.00	100,000	100,000	
5	Kansas City, Dodson.....	Kansas City and Westport Belt Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	20.47	20.47	500,000	250,000	
6	Kansas City, Independence; Kansas City, Argentine, Rosedale (Kans.).....	Metropolitan Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	236.82	236.82	8,500,000	5,636,800	
7	Nevada.....	Missouri Water, Light and Traction Co.	Feb. 25, 1907	Feb. 24, 1908	3.67	3.67	300,000	300,000	
8	St. Joseph.....	St. Joseph Railway, Light, Heat and Power Co.	Jan. 1, 1907	Dec. 31, 1907	42.94	42.94	6,000,000	5,000,000	
9	St. Louis.....	St. Louis, Lakewood and Grant Park Ry. Co.	Apr. 25, 1907	Dec. 31, 1907	1.29	1.29	200,000	32,600	
10	St. Louis and vicinity.....	United Railways Co. of St. Louis	Jan. 1, 1907	Dec. 31, 1907	482.17	482.17	45,000,000	41,897,000	
11	St. Louis, Webster, Bridgeton, Pattonville.....	St. Louis, St. Charles and Western R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	18.24	18.24	615,549	615,549	
12	Sealia.....	Sealia Light and Traction Co.	Jan. 1, 1907	Dec. 31, 1907	8.84	8.84	1,000,000	1,000,000	
13	Springfield.....	Springfield Traction Co.	Jan. 1, 1907	Dec. 31, 1907	15.63	15.63	800,000	800,000	
14	Webb City, Carthage, Purcell, Oronogo, Joplin, Galena (Kans.).....	Southwest Missouri R. R. Co.	Sept. 1, 1906	Aug. 31, 1907	64.57	64.57	5,000,000	3,600,000	
MONTANA.									
Total for state.....					69.24		3,746,275	2,781,275	
1	Anaconda.....	Anaconda Copper Mining Co. (electric light and railway department).	Jan. 1, 1907	Dec. 31, 1907	6.75	6.75	236,275	236,275	
2	Bozeman.....	Bozeman Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	2.50	2.50	20,000	20,000	
3	Butte, Walkerville, Silverbow.....	Butte Electric Ry. Co.	Mar. 1, 1907	Feb. 29, 1908	30.19	30.19	1,000,000	1,000,000	
4	Great Falls.....	Great Falls Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	11.00	11.00	1,000,000	600,000	
5	Helena, East Helena.....	Helena Light and Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	18.90	18.90	1,500,000	985,000	
NEBRASKA.									
Total for state.....					218.73		23,697,500	13,864,585	
1	Lincoln.....	Citizens Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	14.00	14.00	1,000,000	219,410	
2	Lincoln and suburbs.....	Omaha, Lincoln and Beatrice Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.13	6.56	2,250,000	248,100	
3	Lincoln, Haystack, Normal.....	Lincoln Traction Co.	July 1, 1906	June 30, 1907	40.40	42.51	1,065,000	1,029,475	
3a	Lincoln, Capital Beach and Milford R. R. Co. (lessor).....	Lincoln, Capital Beach and Milford R. R. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	2.11		100,000	19,100	
4	Nebraska City.....	Nebraska City Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	2.10	2.10	150,000	17,700	
5	Omaha, South Omaha, Benson, Florence; Council Bluffs (Iowa).....	Omaha and Council Bluffs Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	110.10	140.37	15,000,000	9,000,000	
5a	Omaha and Council Bluffs Railway and Bridge Co. of Iowa (lessor).....	Omaha and Council Bluffs Railway and Bridge Co. of Iowa (lessor)	Jan. 1, 1907	Dec. 31, 1907	30.27		3,000,000	3,000,000	
6	Red Cloud.....	Red Cloud Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.12	1.12	2,500	2,500	
7	South Omaha, Bellevue, Fort Crook.....	Omaha and Southern Interurban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.00	11.00	1,000,000	300,000	
8	South Sioux City, Dakota City; Sioux City (Iowa).....	Sioux City, Crystal Lake and Homer Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	4.50	6.00	100,000	28,300	
NEVADA.									
Total for state.....					7.15		1,000,000	1,000,000	
1	Reno, Sparks.....	Reno Traction Co.	Jan. 1, 1907	Dec. 31, 1907	7.15	7.15	1,000,000	1,000,000	
NEW HAMPSHIRE.									
Total for state.....					247.10		4,522,200	4,514,700	
1	Berlin, Gorham.....	Berlin Street Ry. Co.	July 1, 1906	June 30, 1907	7.75	7.75	110,000	110,000	
2	Claremont.....	Claremont Railway and Lighting Co.	July 1, 1906	June 30, 1907	8.41	8.41	200,000	256,500	
3	Concord, Pannocook, Allenstown, Hooksett, Manchester.....	Boston and Maine R. R. Concord and Manchester electric branch of the Concord and Montreal R. R.	July 1, 1906	June 30, 1907	30.17	30.17	250,000	250,000	
4	Derry, Chester.....	Chester and Derry Railroad Association	July 1, 1906	June 30, 1907	8.00	8.00	50,000	50,000	
5	Dover, Somersworth, Rochester.....	Dover, Somersworth and Rochester Street Ry. Co.	July 1, 1906	June 30, 1907	17.74	17.74	375,000	375,000	
6	Exeter, Hampton, Hampton Falls.....	Exeter, Hampton and Amesbury Street Ry. Co.	July 1, 1906	June 30, 1907	21.61	21.61	360,000	360,000	

¹ Includes 2.00 miles leased from steam railroad, 2.51 miles leased from bridge company, and 58.84 miles lying outside of state, but exclusive of 3.85 miles in state owned by outside companies. Total operated in state 866.08 miles.

² Exclusive of 2.00 miles of track leased from steam railroad, 2.51 miles leased from bridge company, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$2,511,324.

³ Includes permanent or other investments. This company has also a floating debt.

⁴ Includes electric-light plant and permanent or other investments.

⁵ Includes 2.00 miles leased from steam railroad.

⁶ This company has also a floating debt.

⁷ Includes permanent or other investments.

⁸ Includes 56.08 miles in Kansas.

⁹ Includes electric-light plant.

¹⁰ Dividends paid on \$12,983,300 only.

¹¹ Includes 2.51 miles leased from bridge company.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$45,415,549	\$40,448,740		\$291,840	\$22,950,000	\$18,985,200		\$727,160	\$86,455,000	\$80,536,000		\$140,270,949	\$130,217	
300,000	300,000							300,000	300,000	5	\$600,000	133,333	1
100,000	100,000			50,000	43,000			100,000	100,000	5	\$243,000	173,571	2
300,000	300,300							300,000	200,000	5	500,000	41,876	3
100,000	100,000							100,000	100,000	5	\$200,000	28,571	4
500,000	250,000							500,000	500,000	5	\$750,000	30,639	5
8,500,000	5,635,800	5	281,840					13,280,000	13,280,000	4, 5, 6	\$18,866,800	79,007	6
200,000	200,000							225,000	225,000	6	\$425,000	115,804	7
3,500,000	3,500,000			2,500,000	1,500,000	5	78,000	5,000,000	4,021,000	5	\$9,081,000	211,481	8
300,000	32,800							300,000	80,000	6	\$2,000	64,031	9
25,000,000	24,913,800			20,000,000	16,983,200	5	\$649,100	59,500,000	59,180,000	4, 5, 6	\$101,077,000	209,029	10
\$1615,549	\$1615,549										\$615,549	39,132	11
600,000	600,000			400,000	400,000			1,500,000	710,000	5	\$1,710,000	191,375	12
400,000	400,000	2 1/2	10,000					400,000	320,000	5	\$20,000	46,065	13
5,000,000	3,500,000							5,000,000	1,900,000	5	\$15,400,000	83,630	14
3,146,275	2,407,275		16,830	600,000	374,000		18,700	2,300,000	1,530,000		4,331,275	\$29,706	
\$226,275	\$226,275										\$226,275	33,622	1
20,000	20,000										20,000	8,000	2
1,000,000	1,000,000							700,000	700,000	5	1,700,000	56,310	3
1,000,000	600,000							1,500,000	850,000	5	600,000	54,345	4
900,000	561,000	3	16,830	600,000	374,000	5	18,700				1,785,000	94,047	5
16,467,500	7,664,685		223,037	7,200,000	6,199,900		294,905	12,250,000	9,540,000		23,404,585	\$106,266	
1,000,000	219,410										\$219,410	15,072	1
2,250,000	248,100										\$248,100	40,473	2
365,000	320,575	7	23,037	700,000	699,900	5	34,905	250,000	150,000	5	\$1,179,475	28,195	3
100,000	19,100										\$19,100		3a
150,000	17,700										17,700	5,429	4
10,000,000	5,000,000	4	200,000	5,000,000	4,000,000	5	200,000	10,000,000	7,825,000	5	16,825,000	152,383	5
1,500,000	1,500,000			1,500,000	1,500,000	4	80,000	2,000,000	1,565,000	5, 6	4,565,000		3a
\$2,500	\$2,500										\$2,500	2,232	6
1,000,000	300,000										300,000	37,500	7
100,000	\$23,300										\$23,300	6,289	8
1,000,000	1,000,000							1,000,000	130,000		1,130,000	158,042	
1,000,000	1,000,000							1,000,000	130,000	6	\$1,130,000	158,042	1
4,452,200	4,448,700		74,170	70,000	70,000			2,560,000	2,560,000		7,107,700	28,764	
80,000	80,000			30,000	10,000			105,000	105,000	5	\$215,000	27,742	1
250,000	250,500							240,000	240,000	5	\$496,500	50,037	2
\$250,000	\$250,000	7	17,500					\$473,000	\$473,000	3 1/2	\$723,000	23,964	3
50,000	50,000							50,000	50,000	5	100,000	12,500	4
375,000	375,000							300,000	300,000	5	\$675,000	38,050	5
300,000	300,000							225,000	225,000	5	585,000	27,071	6

¹⁰ Floating debt.

¹¹ Includes 2.76 miles in Kansas.

¹² Construction work was in progress during year.

¹³ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,582,067.

¹⁴ The electric department is a part of the Anaconda Copper Mining Co., and has no direct capitalization. The amount shown represents investment value.

¹⁵ Includes 35.89 miles lying outside of state, but exclusive of 1.50 miles in state owned by an outside company. Total operated in state, 184.34 miles.

¹⁶ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$161,079.

¹⁷ Includes 5.62 miles in Iowa.

¹⁸ Entire trackage (30.27 miles) in Iowa.

¹⁹ Cash investment.

²⁰ Cash investment; stock not yet issued.

²¹ Exclusive of 21.28 miles in state owned by outside companies. Total operated in state, 268.38 miles.

²² Special issue of stock and bonds of Concord and Montreal R. R. for this electric division.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
NEW HAMPSHIRE—Cont'd.								
7	Hudson, Pelham, Salem.....	Hudson, Pelham and Salem Street Ry. Co.	July 1, 1906	June 30, 1907	28.41	30.00	\$200,000	\$200,000
7a		Canobie Lake Co. (lessor).....	July 1, 1906	June 30, 1907	(1)		250,000	250,000
8	Keene, Marlboro, Swanzey.....	Keene Electric Ry. Co.....	July 1, 1907	June 30, 1908	8.58	8.58	145,000	145,000
9	Laconia.....	Laconia Street Ry. Co.....	July 1, 1906	June 30, 1907	8.87	8.87	140,000	140,000
10	Manchester, Derry.....	Manchester and Derry Street Ry.....	Dec. 7, 1907	Dec. 31, 1907	8.16	8.76	125,000	125,000
11	Manchester, Goffstown, Massabesic, Goffs Falls.....	Manchester Street Ry.....	July 1, 1906	June 30, 1907	39.86	39.86	944,500	944,500
12	Manchester, Goffs Falls, Hudson, Nashua.....	Manchester and Nashua Street Ry.....	Jan. 1, 1907	Dec. 31, 1907	12.75	12.75	200,000	200,000
13	Nashua.....	Nashua Street Ry. Co., leased to Boston and Northern. (See Massachusetts)						
13	Plaistow, Newton.....	Haverhill, Plaistow and Newton Street Ry. Co.....	July 1, 1906	June 30, 1907	8.48	8.48	225,000	225,000
14	Portsmouth, Rye Beach, North Hampton.....	Portsmouth Electric Ry. (owned and operated by Boston and Maine R. R.)	July 1, 1906	June 30, 1907	19.27	19.27	4387,700	4387,700
15	Portsmouth, Exeter.....	Portsmouth and Exeter Street Ry. Co.....	July 1, 1906	June 30, 1907	12.24	12.24	185,000	185,000
16	Seabrook, Hampton.....	Seabrook and Hampton Beach Street Ry. Co.....	July 1, 1906	June 30, 1907	5.80	5.80	65,000	65,000
16a		Granite State Land Co. (lessor).....	July 1, 1906	June 30, 1907	(4)		250,000	250,000
NEW JERSEY.								
Total for state.....					11,324.12		82,920,990	74,211,380
1	Asbury Park, Long Branch, Sea Girt.....	Atlantic Coast Electric Ry. Co. ¹	Jan. 1, 1907	Dec. 31, 1907	27.56	33.29	1,000,000	1,000,000
1a		Seashore Electric Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	5.73		200,000	200,000
2	Atlantic City.....	Central Passenger Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	2.83	2.83	250,000	250,000
3	Atlantic City, Longport.....	West Jersey and Seashore R. R. Co. (Atlantic City and Longport branch).	Jan. 1, 1907	Dec. 31, 1907	18.55	18.55	(12)	(12)
4	Atlantic City, Pleasantville, Absecon, Somers Point.....	Atlantic City and Suburban Traction Co. ¹³	Jan. 1, 1907	Dec. 31, 1907	18.42	18.42	750,000	750,000
5	Atlantic City, Pleasantville, Somers Point, Ocean City.....	Atlantic City and Shore R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.20	28.96	1,000,000	1,000,000
5a		Atlantic City and Ocean City R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.19		180,000	180,000
6	Bridgeton, Millville.....	Bridgeton and Millville Traction Co.....	July 1, 1906	June 30, 1907	37.85	37.85	500,000	200,000
7	Brigantine.....	Brigantine Transportation Co. ¹⁴						
7	Camden, Woodbury, Glassboro, Newfield, Mays Landing, Atlantic City, Vineland, Millville.....	West Jersey and Seashore R. R. Co. (Camden and Atlantic City branch).	Jan. 1, 1907	Dec. 31, 1907	122.76	122.76	(12)	(12)
8	Cape May.....	Cape May, Delaware Bay and Sewell's Point R. R. Co.	July 1, 1906	June 30, 1907	10.52	10.52	150,000	150,000
9	Cape May.....	Ocean Street Passenger Ry. Co.....	July 1, 1906	June 30, 1907	1.53	1.53	4,000	4,000
10	Edgewater, Fort Lee, Englewood, Hackensack, Saddle River.....	New Jersey and Hudson River Railway and Ferry Co.	Jan. 1, 1907	Dec. 31, 1907	31.32	31.32	5,750,000	1,660,000
11	Keyport, Matawan, South Amboy, Red Bank, Atlantic Highlands.....	Jersey Central Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	29.74	29.47	1,500,000	1,000,000
12	Millville, Vineland.....	Millville Traction Co.....	Aug. 1, 1906	July 31, 1907	13.11	13.11	400,000	175,000
13	Morristown, Rockaway, Dover, Wharton, Millburn.....	Morris County Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	30.00	30.00	3,000,000	822,300
14	Mt. Holly, Hanesport, Burlington, Moorestown.....	Burlington County Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	15.49	15.49	550,000	484,700
15	Newark, Arlington, Bayonne, Blackwood, Bloomfield, Boundbrook, Caldwell, Camden, Clementon, Coatesville, Elizabeth, Gloucester City, Haddonfield, Hartford, Hoboken, Jersey City, Mantua, Merchantville, Milltown, Montclair, Moorestown, New Brunswick, Orange, Passaic, Paterson, Perth Amboy, Plainfield, Rahway, Raritan, Rutherford, Singac, Somerville, South Amboy, South Orange, Woodbury.....	Public Service Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	359.91	691.64	38,000,000	38,000,000
15a		Consolidated Traction Co. of New Jersey (lessor).	Jan. 1, 1907	Dec. 31, 1907	174.05		15,000,000	15,000,000
15b		Camden and Suburban Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	61.53		3,000,000	2,000,000
15c		Camden Horse R. R. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	30.11		250,000	250,000
15d		Camden Gloucester and Woodbury Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	25.56		600,000	600,000
15e		Bergen Turnpike Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	12.68		51,990	51,990
15f		Rapid Transit Street Ry. Co. of the city of Newark (lessor).	Jan. 1, 1907	Dec. 31, 1907	11.96		504,000	504,000
15g		Orange and Passaic Valley Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	10.65		1,000,000	1,000,000
15h		South Orange and Maplewood Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	5.40		225,000	225,000

¹ This company owns an amusement park, which is leased to Hudson, Pelham and Salem Street Ry. Co.

² This company has also a floating debt.

³ Cars operated by other companies from terminal of road owned.

⁴ Special issue of stock of Boston and Maine R. R. for this electric division.

⁵ Operations largely confined to summer season.

⁶ This company owns land at Seabrook Beach and a bridge over Hampton River, which are leased to Seabrook and Hampton Beach Ry. Co.

⁷ Includes 11.40 miles lying outside of state, but exclusive of 7.08 miles in state owned by an outside company. Total operated in state, 1,319.80 miles.

⁸ Exclusive of 171.31 miles of track for which no capital is shown, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$4,336,965.

⁹ Includes West End and Long Branch Ry. Co., Asbury Park and Sea Girt R. R. Co., and Seacoast Traction Co.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$200,000	\$50,000							\$200,000	\$200,000	5	\$400,000	\$22,101	7
250,000	250,000										250,000		7a
145,000	145,000							80,000	80,000	5	\$225,000	26,224	8
100,000	100,000			\$40,000	\$40,000			131,000	131,000	5	271,000	30,552	9
125,000	125,000							125,000	125,000	5	250,000	30,637	10
944,500	944,500	6	\$26,670								\$944,500	23,005	11
200,000	200,000							200,000	200,000	5	\$400,000	31,373	12
225,000	225,000							145,000	145,000	5	370,000	43,632	13
\$387,700	\$387,700										\$387,700	20,119	14
185,000	185,000							145,000	145,000	5	320,000	26,961	15
65,000	65,000							45,000	45,000	5	110,000		16
250,000	250,000							125,000	125,000	5	375,000	83,021	16a
\$1,529,980	73,176,280		910,396	1,400,000	1,035,100		\$43,500	\$5,028,000	\$6,260,000		160,471,880	\$125,439	
1,000,000	1,000,000	0	60,000					2,000,000	1,720,000	5	\$2,720,000		1
200,000	200,000	5	112,500					200,000	200,000	5	400,000	93,722	1a
250,000	250,000							300,000	40,000	5	290,000	102,473	2
(12)	(12)			(2)	(12)			(12)	(12)		(12)		3
750,000	750,000							750,000	750,000	5	1,500,000	81,433	4
1,000,000	1,000,000							1,000,000	850,000	5	\$1,850,000		5
180,000	180,000		(14)					180,000	180,000	5	360,000	325,806	5a
500,000	200,000	7	14,000					500,000	500,000	5	\$700,000	18,494	6
(15)	(15)			(15)	(15)			(15)	(15)		(15)		7
150,000	150,000							150,000	150,000	5	\$300,000	28,517	8
4,000	4,000										\$4,000	2,614	9
5,000,000	1,000,000			750,000	650,000	6	\$2,000	5,000,000	3,015,000	4	\$4,065,000	148,946	10
1,500,000	1,000,000							1,500,000	1,360,000	5	2,360,000	88,257	11
400,000	175,000							400,000	206,000	5	383,000	29,214	12
3,000,000	832,500							3,000,000	1,432,000	5	2,364,500	75,463	13
550,000	484,790							550,000	475,000	5	\$959,790	61,962	14
38,000,000	38,000,000							41,000,000	40,987,000	4, 5, 6	78,987,000		15
15,000,000	15,000,000	4	600,000					\$21,808,000	\$21,808,000	4 1/2, 5	26,806,000		15a
3,000,000	3,000,000	1 1/2	45,000					1,500,000	1,489,000	5	4,489,000		15b
250,000	250,000	2 1/2	60,000					500,000	500,000		750,000		15c
600,000	600,000										600,000		15d
51,990	51,990							1,000,000	1,000,000	5	1,051,990		15e
504,000	504,000	11 1/2	50,220					500,000	500,000	5	1,004,000		15f
1,000,000	1,000,000	1	9,750					1,000,000	833,000	5	1,833,000		15g
75,000	75,000			150,000	150,000	3	4,500				225,000		15h

¹⁰ Includes permanent or other investments.

¹¹ Dividends paid on \$50,000 only.

¹² Capitalization included in that of steam railroad.

¹³ Operated by receiver from May 1 to December 31, 1907.

¹⁴ Net income turned over to holding company.

¹⁵ Includes permanent or other investments. This company has also a floating debt.

¹⁶ Not operated during census year.

¹⁷ Includes \$6,908,000 bonds of consolidated companies.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
NEW JERSEY—Continued.								
16	Ocean City..... Phillipsburg.....	Ocean City Electric R. R. Co..... Phillipsburg Horse Car R. R. Co. (electric. See Easton Transit Co., Pennsylvania).	Apr. 1, 1906	Mar. 31, 1907	7.50	7.50	\$100,000	\$100,000
17	Phillipsburg, Washington.....	Easton and Washington Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	18.00	18.00	1,250,000	375,000
18	Point Pleasant, Bayhead.....	Point Pleasant Traction Co.....	Jan. 1, 1907	Dec. 31, 1907 ¹	3.50	3.50	200,000	200,000
19	Red Bank, Eastontown, Long Branch, Oceanic.....	Monmouth County Electric Co.....	Apr. 1, 1906	Mar. 31, 1907	17.71	17.71	500,000	325,000
20	Rutherford, Carlstadt, Hasbrouck Heights, Lodi.....	Hudson River Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	17.10	17.96	1,500,000	1,233,100
21	Sea Isle City.....	New Jersey Rapid Transit Co.....	Jan. 1, 1907	Dec. 31, 1907 ²	6.58	6.58	200,000	200,000
22	Trenton, Princeton, Pennington, Hopewell, Yardville.....	Trenton Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	40.03	72.44	1,000,000	1,000,000
22a	.....	Trenton, Pennington and Hopewell Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	12.61	.....	250,000	250,000
22b	.....	Monmouth County Traction Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	11.97	.....	100,000	100,000
22c	.....	Trenton, Hamilton and Ewing Traction Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	7.83	.....	200,000	200,000
23	Trenton, Bordentown, Burlington, Camden.....	Camden and Trenton Ry. Co. ³	Jan. 1, 1907	Dec. 31, 1907	34.27	44.55	1,750,000	1,750,000
23a	.....	Trenton Terminal R. R. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	.87	.....	15,000	15,000
24	Trenton, Lawrenceville, Princeton, Yardley, Morrisville, Newtown, New Hope (Pa.).....	New Jersey and Pennsylvania Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	1.00	25.90	500,000	500,000
24a	.....	Trenton, Lawrenceville and Princeton R. R. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	12.60	.....	200,000	200,000
24b	.....	Yardley, Morrisville and Trenton Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	* 6.00	.....	100,000	100,000
24c	.....	Newton and Yardley Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	* 5.40	.....	50,000	50,000
25	Trenton, New Brunswick.....	Trenton and New Brunswick R. R. Co. ⁴	Dec. 1, 1906	Nov. 30, 1907	23.61	23.61	1,000,000	1,000,000
26	Wildwood, Wildwood Crest.....	Five Mile Beach Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.75	5.75	150,000	104,000
NEW MEXICO.								
Total for territory.....					10.10	.....	450,000	450,000
1	Albuquerque and suburbs.....	Albuquerque Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	5.10	5.10	250,000	250,000
2	Las Vegas.....	Las Vegas Railway and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	5.00	5.00	300,000	200,000
NEW YORK.								
Total for state.....					* 3,884.74	.....	454,330,000	378,047,549
1	Albany, Rensselaer, Hudson.....	Albany and Hudson R. R. Co.....	July 1, 1906	June 30, 1907	45.34	47.00	2,000,000	1,750,000
2	Albany, Rensselaer, Watervliet, Troy, Cohoes, Waterford.....	United Traction Co., including Capital Railway.....	Jan. 1, 1907	Dec. 31, 1907	* 76.88	91.16	12,500,000	12,500,000
2a	.....	Waterford and Cohoes R. R. Co. (lessor).....	July 1, 1906	June 30, 1907	2.50	.....	25,000	25,000
2b	.....	Troy and Cohoes R. R. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	6.00	.....	50,000	50,000
2c	.....	Lansingburgh and Cohoes R. R. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	1.71	.....	15,000	15,000
3	Albany, Troy, Waterford, Mechanicville, Greenwich, Glens Falls, Saratoga Springs, Ballston, Lake George, Warrensburg.....	Hudson Valley Ry. Co., including North River Ry. Co.....	July 1, 1906	June 30, 1907	128.05	128.25	5,500,000	3,000,000
4	Albion, Averill Park.....	Troy and New England Ry. Co.....	July 1, 1906	June 30, 1907	10.00	10.00	350,000	140,000
5	Alexandria Bay, Redwood.....	St. Lawrence International Electric Railroad and Land Co.....	July 1, 1906	June 30, 1907 ⁵	7.69	7.69	250,000	250,000
6	Babylon.....	Babylon R. R. Co.....	May 1, 1907	Dec. 31, 1907	1.38	1.59	25,000	25,000
7	Ballston Spa, Middle Grove.....	Eastern New York R. R. Co.....	July 1, 1906	June 30, 1907	15.00	15.00	1,750,000	300,000
8	Binghamton, Union.....	Binghamton Ry. Co.....	July 1, 1906	June 30, 1907	46.00	46.00	1,150,000	976,849
9	Buffalo, Lancaster, Depew, North Tonawanda, Niagara Falls, Lockport, Olean, Niagara Falls, Queenston, (Canada).....	International Ry. Co.....	July 1, 1906	June 30, 1907	* 259.97	263.09	17,000,000	16,320,500
10	Buffalo and suburbs.....	Crosstown Street Railway Co. of Buffalo.....	July 1, 1906	June 30, 1907	103.65	103.65	3,000,000	2,860,000
11	Buffalo, Depew.....	Buffalo and Depew Ry. Co.....	July 1, 1906	June 30, 1907	13.59	13.59	350,000	305,000
12	Buffalo, Ebenezer, Orchard Park, Hamburg.....	Buffalo Southern Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	19.86	19.86	2,000,000	547,200
13	Buffalo, Hamburg, Dunkirk, Fredonia, Westfield, North-east, Erie (Pa.).....	Buffalo and Lake Erie Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	* 58.59	90.93	7,500,000	7,500,000
13a	.....	Erie Electric Motor Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	* 32.19	.....	1,250,000	1,250,000
13b	.....	Dunkirk Street Ry. Co. (lessor).....	July 1, 1907	Dec. 31, 1907	6.15	.....	750,000	750,000
14	Buffalo, Williamsville.....	Buffalo and Williamsville Electric Ry. Co.....	July 1, 1906	June 30, 1907	11.00	11.00	3,500,000	75,000
15	Catskill, Leeds.....	Catskill Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.50	5.50	400,000	138,000
16	Corning, Painted Post.....	Corning and Painted Post Street Ry.....	July 1, 1906	June 30, 1907	5.75	5.75	100,000	100,000

¹ This company has also a floating debt.² Operations largely confined to summer season.³ Includes permanent or other investments.⁴ Operated by receiver.⁵ Includes permanent or other investments. This company has also a floating debt.⁶ Entire trackage 16 miles in Pennsylvania.⁷ Entire trackage 15.40 miles in Pennsylvania.⁸ Includes electric-light plant. This company has also a floating debt.⁹ Includes 155.58 miles leased from steam railroads, 9.00 miles on bridges owned by city of New York, and 97.97 miles lying outside of state; but exclusive of 22.42 miles in state owned by outside companies. Total operated in state, 3,900.19 miles.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$100,000	\$100,000							\$75,000	\$75,000	5, 6	\$175,000	\$23,333	16
1,250,000	375,000							1,250,000	375,000	5	750,000	41,667	17
200,000	200,000							200,000	200,000	5	\$400,000	114,286	18
500,000	325,000							500,000	325,000	4	\$150,000	35,702	19
1,000,000	1,000,000			\$500,000	\$235,100			1,000,000	564,000	5	\$1,759,100	104,843	20
200,000	200,000							200,000	120,000	5	320,000	48,032	21
1,000,000	1,000,000	6	\$59,928					2,000,000	1,962,000	5, 6	\$2,962,000		22
250,000	250,000							350,000	350,000	5	600,000	62,369	22a
100,000	100,000							300,000	276,000	5	576,000		22b
200,000	200,000							350,000	350,000	5	550,000		22c
1,750,000	1,750,000							2,500,000	1,332,500	5	\$3,832,500	88,574	23
15,000	15,000							15,000	15,000	6	30,000		23a
500,000	500,000							3,000,000	963,000	5	\$1,465,000		24
200,000	200,000							100,000	100,000		1200,000		24a
100,000	100,000							100,000	100,000		1200,000	78,571	24b
50,000	50,000										180,000		24c
1,000,000	1,000,000							1,000,000	1,000,000	5	2,000,000	84,710	25
150,000	104,000							150,000	104,000	5	1208,000	39,174	25
450,000	400,000							550,000	407,000		857,000	84,851	
250,000	250,000							250,000	107,000	6	357,000	70,000	1
200,000	200,000							300,000	300,000	5	\$400,000	100,000	2
422,255,000	350,482,049		16,317,307	32,075,000	27,565,500		\$939,126	465,712,663	336,447,138		714,494,067	\$173,095	
1,000,000	750,000			1,000,000	1,000,000			2,000,000	1,850,000	5	\$3,800,000	79,051	1
12,500,000	12,500,000	4	500,000					11,550,000	9,500,000	4 1/2, 6	\$19,050,000		2
25,000	25,000	7	1,750								25,000	219,199	2a
50,000	50,000	7	3,500								50,000		2b
15,000	15,000	7	1,050								15,000		2c
3,000,000	3,000,000			2,500,000				7,845,000	7,845,000	5, 6	\$10,845,000	84,693	3
350,000	180,000							191,000	153,725	5, 6	363,725	36,373	4
250,000	250,000							300,000	300,000	5	\$450,000	58,518	5
25,000	25,000							900,000	33,000	5	58,000	36,478	6
1,750,000	300,000							1,750,000	300,000	5	600,000	40,000	7
1,150,000	976,849							2,500,000	1,795,000	5, 6	\$2,792,849	60,062	8
17,000,000	16,330,500	4	682,830					16,028,000	10,898,000	4 1/2, 5, 6	\$27,188,500	115,270	9
3,000,000	2,800,000	4	114,400					3,000,000	2,974,000	5	5,834,000	56,266	10
350,000	305,000							350,000	350,000	5	685,000	48,197	11
2,000,000	547,200							2,000,000	500,000	5	1,047,200	52,739	12
5,000,000	5,000,000			2,500,000	2,500,000			12,911,000	5,250,000	4, 5, 6	\$12,750,000		13
1,250,000	1,250,000							1,000,000	1,250,000	5, 6	2,500,000	165,000	13a
750,000	750,000							3,500,000	117,500	5	1,192,500	17,500	13b
3,500,000	75,000												14
400,000	138,000							400,000	122,000	5	270,000	49,091	15
100,000	100,000							100,000	100,000	5	300,000	34,783	16

¹⁰ Exclusive of 155.56 miles of track leased from steam railroads, and 6.01 miles on bridges owned by city of New York, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$70,032,067.

¹¹ Includes electric-light plant and permanent or other investments.

¹² Includes 2.66 miles leased to and operated by Cohoes Ry. Co.

¹³ Includes electric-light plant.

¹⁴ Includes 24.12 miles leased from steam railroad, and 23.23 miles in Canada.

¹⁵ Includes 19.49 miles in Pennsylvania.

¹⁶ Includes Erie, Reed Park and Lakeside Street Ry. Co., and Erie City Passenger Ry. Co., which are technically leased to Erie Electric Motor Co.

¹⁷ Entire trackage (32.19 miles) in Pennsylvania.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
NEW YORK—Continued.								
17	Cortland, McGraw, Prohle.	Cortland County Traction Co.	July 1, 1906	June 30, 1907	17.18	17.18	\$320,000	\$320,000
18	Elmira, Elmira Heights, Horseheads.	Elmira Water, Light and R. R. Co.	July 1, 1906	June 30, 1907	14.17	27.24	1,000,000	1,000,000
18a		West Water Street R. R. Co. (lessor).	July 1, 1906	June 30, 1907	3.75		25,000	25,000
18b		West Side Street R. R. Co. (lessor).	July 1, 1906	June 30, 1907	9.32		300,000	105,000
19	Elmira, Watkins.	Elmira and Seneca Lake Traction Co.	July 1, 1906	June 30, 1907	16.41	22.41	200,000	200,000
20	Fishkill on the Hudson, Fishkill, Matteawan.	Fishkill Electric Ry. Co.	July 1, 1906	June 30, 1907	4.37	7.22	50,000	50,000
20a		Citizens' Railroad Light and Power Co. (lessor).	July 1, 1906	June 30, 1907	2.86		175,000	175,000
21	Fulton.	Lake Ontario and Riverside Ry. Co. (Fulton and Oswego Falls portion). ¹	July 1, 1906	June 30, 1907	1.04	1.04	15,000	15,000
22	Glen Cove, Sea Cliff.	Glen Cove R. R.	Jan. 1, 1907	Dec. 31, 1907	3.45	3.45	50,000	10,000
23	Gloversville, Mountain Lake.	Adirondack Lakes' Traction Co.	Jan. 1, 1907	Dec. 31, 1907	4.65	4.65	60,000	60,000
24	Gloversville, Johnstown, Fonda, Amsterdam, Schenectady.	Fonda, Johnstown and Gloversville R. R. Co. (electric division).	Jan. 1, 1907	Dec. 31, 1907	73.53	77.95	2,500,000	2,500,000
24a		Johnstown, Gloversville and Kingsborn Horse R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	4.42		50,000	50,000
25	Hempstead.	Great South Bay Ferry Co.	Jan. 1, 1907	Dec. 31, 1907 ²	1.25	1.25	50,000	50,000
26	Hempstead, Mineola, Freeport, New York (Queens).	New York and Long Island Traction Co.	July 1, 1906	June 30, 1907	40.02	49.92	1,000,000	1,000,000
27	Hornell.	Hornellville Electric Ry. Co.	July 1, 1906	June 30, 1907	5.07	5.07	50,000	50,000
28	Hornell, Canistota.	Hornellville and Canistota Ry. Co.	July 1, 1906	June 30, 1907	4.33	4.33	20,000	50,000
29	Huntington.	Huntington R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	3.24	3.24	30,000	30,000
30	Ithaca.	Ithaca Street Ry. Co.	July 1, 1906	June 30, 1907	6.68	10.06	325,000	325,000
30a	do.	Cayuga Lake Electric Ry. Co. (lessor).	July 1, 1906	June 30, 1907	1.00		25,000	25,000
30b	do.	Ithaca and Cayuga Heights Ry. (lessor).	July 1, 1906	June 30, 1907	2.38		50,000	50,000
31	Jamesstown, Lakewood, Falconer.	Jamesstown Street Ry. Co.	July 1, 1906	June 30, 1907	24.64	24.64	250,000	100,000
32	Jamesstown, Chautauqua, Mayville, Westfield, Barcelona, Keeseville, Port Kent.	Chautauqua Traction Co.	July 1, 1906	June 30, 1907	26.73	26.73	600,000	500,000
33	Keeseville, Appleton Chasm and Lake Champlain R. R. Co.	Keeseville, Appleton Chasm and Lake Champlain R. R. Co.	July 1, 1906	June 30, 1907	6.22	6.22	60,000	60,000
34	Kingston.	Kingston Consolidated R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	9.18	9.18	400,000	400,000
35	Lima, Honeoye Falls.	Lima-Honeoye Electric Light and R. R. Co. ³	Jan. 1, 1907	Dec. 31, 1907	5.30	5.30	100,000	100,000
36	Middletown, Goshen.	Walkkill Transit Co.	Jan. 1, 1907	Dec. 31, 1907	12.40	12.40	350,000	320,750
37	Newburg, Walden.	Orange County Traction Co.	July 1, 1906	June 30, 1907	17.04	17.04	325,000	325,000
38	New Paltz, Highland.	New Paltz, Highland and Poughkeepsie Traction Co.	July 1, 1906	June 30, 1907	8.52	8.52	100,000	100,000
39	New York (Manhattan and Bronx).	New York City Ry. Co.	July 1, 1906	June 30, 1907	1.57	280.11	20,000,000	13,000,000
39a	do.	Metropolitan Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	53.98		52,000,000	52,000,000
39b	do.	Bleecker Street and Fulton Ferry R. R. Co. (lessor).	July 1, 1906	June 30, 1907	8.79		900,000	900,000
39c	do.	Broadway and Seventh Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	19.33		2,100,000	2,100,000
39d	do.	Central Crostown R. R. Co. of New York (lessor).	July 1, 1906	June 30, 1907	3.82		600,000	600,000
39e	do.	Central Park North and East River R. R. Co. (lessor).	July 1, 1906	June 30, 1907	20.86		1,800,000	1,800,000
39f	do.	Christopher and Tenth Street R. R. Co. (lessor).	July 1, 1906	June 30, 1907	4.11		650,000	650,000
39g	do.	Eighth Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	19.44		1,000,000	1,000,000
39h	do.	Forty-second Street and Grand Street Ferry R. R. Co. (lessor).	July 1, 1906	June 30, 1907	6.79		750,000	748,000
39i	do.	New York and Harlem (city lines) R. R. Co. (lessor).	July 1, 1906	June 30, 1907	19.52		113,000,000	113,000,000
39j	do.	Ninth Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	15.90		800,000	800,000
39k	do.	Second Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	30.00		2,500,000	1,800,000
39l	do.	Sixth Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	12.07		2,000,000	2,000,000
39m	do.	Third Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	33.92		40,000,000	15,995,000
39n	do.	Twenty-third Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	4.54		600,000	600,000
39o	do.	Fort George and Eleventh Avenue R. R. Co. (lessor).	July 1, 1906	June 30, 1907	1.66		3,000,000	3,000,000
39p	do.	Fulton Street R. R. Co. (lessor).	July 1, 1906	June 30, 1907	1.05		500,000	500,000
39q	do.	Kingsbridge Ry. Co. (lessor).	July 1, 1906	June 30, 1907	6.72		1,000,000	800,000
39r	do.	New York, Westchester and Connecticut Traction Co. (lessor).	July 1, 1906	June 30, 1907	2.31		600,000	600,000
39s	do.	Thirty-fourth Street Crostown Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.95		1,000,000	1,000,000
39t	do.	Twenty-eighth and Twenty-ninth Streets Crostown R. R. Co. (lessor).	July 1, 1906	June 30, 1907	6.75		1,500,000	1,500,000
40	do.	Forty-second Street, Manhattanville and St. Nicholas Avenue Ry. Co.	July 1, 1906	June 30, 1907	23.49	28.52	7,500,000	2,500,000
41	do.	Dry Dock, East Broadway and Battery R. R. Co.	July 1, 1906	June 30, 1907	17.64	22.48	1,200,000	1,200,000
42	do.	New York City Interborough Ry. Co.	July 1, 1906	June 30, 1907	8.24	10.00	5,000,000	5,000,000
43	do.	Southern Boulevard R. R. Co.	July 1, 1906	June 30, 1907	7.88	10.24	250,000	250,000
44	New York, Yonkers, Hastings.	Yonkers R. R. Co.	July 1, 1906	June 30, 1907	35.69	45.83	1,000,000	1,000,000
45	New York (Manhattan and Bronx).	Union Railway Co. of New York City.	July 1, 1906	June 30, 1907	83.59	110.05	2,000,000	2,000,000
45a	do.	Bronx Traction Co. (lessor).	July 1, 1906	June 30, 1907	14.10		585,000	58,100

¹ Includes electric-light plant. This company has also a floating debt.² Includes electric-light plant and permanent or other investments.³ This company has also a floating debt.⁴ Includes permanent or other investments.⁵ Owned by Syracuse and Ontario R. R. Co., from August, 1906, to June, 1907; on the latter date it was merged into Syracuse, Lake Shore and Northern R. R. Co.⁶ Operations largely confined to summer season.⁷ Includes electric-light plant and permanent or other investments. This company has also a floating debt.⁸ Practically owned by an individual. Capitalization shown is that of the old company.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capitalization outstanding.	Capitalization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount outstanding.	Rates of interest, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$320,000	\$320,000							\$500,000	\$500,000	4,5	\$220,000	\$47,730	17
1,000,000	1,000,000							3,200,000	3,200,000	4,5,6	\$4,200,000		18
25,000	25,000										25,000	171,900	18a
300,000	105,000							355,000	355,000	5	400,000		18b
200,000	200,000							200,000	200,000	5	\$400,000	24,375	19
50,000	50,000							50,000	50,000	6	100,000		20
175,000	175,000							175,000	175,000	5,6	\$350,000	62,241	20a
15,000	15,000							15,000	15,000	6	\$30,000	35,846	21
50,000	10,000										10,000	2,899	22
60,000	60,000							100,000	100,000	5	100,000	34,409	23
2,500,000	2,500,000							7,000,000	7,000,000	4,5	\$9,500,000		24
50,000	50,000	8	\$4,000					50,000	50,000	6	100,000	123,156	24a
50,000	50,000										50,000	40,000	25
750,000	750,000			\$250,000	\$250,000			1,000,000	1,000,000	4,5	\$2,000,000	49,975	26
50,000	50,000							70,000	70,000	4	120,000	23,069	27
50,000	50,000							80,000	80,000	4	130,000	30,023	28
30,000	30,000							30,000	26,000	5	\$56,000	17,284	29
325,000	325,000	5,6	17,875					250,000	250,000	6	575,000		30
25,000	25,000							25,000	25,000	6	50,000	71,074	30a
50,000	50,000							40,000	40,000	5	90,000		30b
250,000	100,000							300,000	300,000	6	\$400,000	16,234	31
500,000	500,000							600,000	139,000	5	\$659,000	24,654	32
60,000	60,000							205,000	175,000	6	235,000	37,781	33
200,000	200,000			200,000	200,000	4	\$8,000	700,000	700,000	5,7	1,100,000	119,826	34
100,000	100,000							60,000	60,000	6	\$160,000	30,189	35
350,000	330,750							350,000	300,000	5	620,750	50,000	36
150,000	150,000			175,000	175,000			425,000	425,000	5	\$750,000	44,014	37
100,000	100,000							100,000	100,000	4	200,000	23,474	38
20,000,000	13,000,000										\$13,000,000		39
52,000,000	52,000,000	7	3,630,982					98,250,000	40,854,000	4,5	\$82,854,000		39a
900,000	900,000	1,5	13,500					700,000	700,000	4	1,600,000		39b
2,100,000	2,100,000	10	210,000					14,300,000	9,600,000	5	11,750,000		39c
600,000	600,000	15	90,000					3,250,000	2,740,000	4,6	\$3,340,000		39d
1,400,000	1,400,000	9	102,000					1,300,000	1,300,000	7	3,000,000		39e
650,000	650,000	8	52,000					210,000	210,000	4	800,000		39f
1,000,000	1,000,000	16	160,000					1,000,000	1,000,000	6	2,000,000		39g
750,000	748,000	18	134,640					250,000	236,000	6	964,000		39h
\$3,000,000	\$3,000,000	13,5	\$240,000								\$3,000,000	786,791	39i
800,000	800,000	8	64,000								800,000		39j
2,500,000	1,982,000	9	187,280					8,900,000	7,000,000	5	\$8,982,000		39k
2,000,000	2,000,000	7	140,000								2,000,000		39l
40,000,000	15,995,800	6	959,748					55,000,000	42,300,000	4,5	\$58,555,800		39m
600,000	600,000	14	108,000					400,000	400,000	5,6	\$1,000,000		39n
3,000,000	3,000,000										3,000,000		39o
500,000	500,000							500,000	500,000	4	1,000,000		39p
1,000,000	800,000							2,500,000	2,500,000	4	\$3,100,000		39q
600,000	600,000												39r
1,000,000	1,000,000							1,000,000	1,000,000	5	2,000,000		39s
1,500,000	1,500,000							1,500,000	1,500,000	5	\$3,000,000		39t
7,500,000	2,500,000							2,800,000	2,800,000	6	\$3,300,000	225,628	40
1,300,000	1,200,000							2,200,000	2,200,000	5	\$3,400,000	192,744	41
5,000,000	5,000,000							5,000,000			\$5,000,000	606,796	42
250,000	250,000							250,000	250,000	5	\$500,000	63,452	43
1,000,000	1,000,000							1,000,000	1,000,000	5	\$2,000,000	86,996	44
2,000,000	2,000,000							2,000,000	2,000,000	5	\$4,000,000		45
555,000	58,100										\$58,100	40,707	45a

^a Includes electric-light plant.

^b Includes permanent or other investments. This company has also a floating debt.

^c Amount apportioned to city lines (electric). Total capital represents steam and electric lines.

^d Dividend was 4 per cent on total of \$10,000,000 stock, equivalent to 13 1/2 per cent on amount apportioned to electric lines. The total stock also earned a 10 per cent dividend, which was paid by the steam-railroad lessee, which also paid the interest on the bonds.

^e Operated under agreement, but treated as a lessor company.

^f Road was still under construction.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL.

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
NEW YORK—Continued.								
46	New York, Mamaroneck, White Plains, Tarrytown, Scarsdale.	Tarrytown, White Plains and Mamaroneck Ry. Co.	July 1, 1906	June 30, 1907	23.59	23.59	\$300,000	\$300,000
47	New York, Mt. Vernon, New Rochelle, Pelham, Westchester.	Westchester Electric R. R. Co.	July 1, 1906	June 30, 1907	35.41	44.15	500,000	100,000
48	New York (Manhattan and Bronx).	Interborough Rapid Transit Co.	July 1, 1906	June 30, 1907	172.48	190.53	25,000,000	25,000,000
48a	do.	Manhattan Ry. Co. (elevated) (lessor).	July 1, 1906	June 30, 1907	118.05		60,000,000	59,999,700
49	New York (Bronx).	Pelham Park R. R. Co.	July 1, 1906	June 30, 1907	1.50	1.50	50,000	50,000
50	do.	City Island R. R. Co.	July 1, 1906	June 30, 1907	2.00	2.00	50,000	50,000
51	New York (Brooklyn).	Brooklyn Heights R. R. Co.	July 1, 1906	June 30, 1907	43.56	238.16	200,000	200,000
51a	do.	Brooklyn City R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	229.06		12,000,000	12,000,000
52	do.	Nassau Electric R. R. Co.	July 1, 1906	June 30, 1907	132.81	140.09	15,000,000	15,000,000
53	do.	Brooklyn Union Elevated R. R. Co.	July 1, 1906	June 30, 1907	98.02	95.04	18,000,000	18,000,000
53a	do.	Carnegie R. R. Co. (lessor).	July 1, 1906	June 30, 1907	7.02		250,000	250,000
54	do.	Brooklyn, Queens County and Suburban R. R. Co.	July 1, 1906	June 30, 1907	57.31	60.56	15,000,000	2,000,000
55	do.	South Brooklyn Ry. Co.	July 1, 1906	June 30, 1907	6.04	31.71	500,000	600,000
55a	do.	Prospect Park and Coney Island R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	20.77		500,000	280,000
55b	do.	New York and Coney Island R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.66		100,000	100,000
55c	do.	Prospect Park and South Brooklyn R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.22		50,000	50,000
56	do.	Sea Beach Ry. Co.	July 1, 1906	June 30, 1907	14.19	14.19	650,000	650,000
57	do.	Coney Island and Gravesend Ry. Co.	July 1, 1906	June 30, 1907	6.79	6.79	350,000	350,000
58	do.	Transit Development Co.	July 1, 1906	June 30, 1907	(1)		500,000	500,000
59	New York (Williamsburg bridge).	Bridge Operating Co.	July 1, 1906	June 30, 1907	13.59	3.59	100,000	100,000
60	New York (Brooklyn).	Coney Island and Brooklyn R. R. Co.	July 1, 1906	June 30, 1907	26.38	53.20	2,000,000	2,000,000
60a	do.	Brooklyn City and Newtown R. R. Co., including De Kalb Avenue and North Beach R. R. Co. (lessor).	July 1, 1906	June 30, 1907	21.92		2,000,000	1,923,400
61	do.	Van Brunt Street and Erie Basin R. R. Co.	July 1, 1907	June 30, 1908	2.35	2.50	300,000	200,000
62	do.	Marine Ry. Co.	July 1, 1906	June 30, 1907	.55	.55	50,000	50,000
63	New York (Queens).	New York and Queens County Ry. Co.	July 1, 1906	June 30, 1907	74.47	74.47	6,000,000	3,235,000
64	do.	Long Island Electric Ry. Co.	July 1, 1906	June 30, 1907	28.74	27.34	600,000	600,000
65	do.	Ocean Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	16.86	14.47	50,000	35,000
66	New York (Richmond).	Staten Island Midland Ry. Co.	July 1, 1906	June 30, 1907	27.68	27.78	1,000,000	1,000,000
67	do.	Richmond Light and R. R. Co.	July 1, 1906	June 30, 1907	31.02	31.02	3,000,000	2,871,750
68	do.	Southfield Beach R. R. Co.	July 1, 1906	June 30, 1907	4.00	4.00	250,000	250,000
69	Niagara Falls.	Electric City Ry. Co.	July 1, 1906	June 30, 1907	2.85	2.85	80,000	80,000
70	Niagara Falls, Lewiston, Youngstown.	Niagara Gorge R. R. Co.	July 1, 1906	June 30, 1907	14.73	25.43	1,000,000	1,000,000
70a	do.	Lewiston and Youngstown Frontier Ry. Co. (lessor).	July 1, 1906	June 30, 1907	8.70		150,000	134,000
71	Northport.	Northport Traction Co.	Jan. 1, 1907	Dec. 31, 1907	2.74	2.74	50,000	45,000
72	Ogdensburg.	Ogdensburg Street Ry. Co.	July 1, 1906	June 30, 1907	10.00	10.00	150,000	150,000
73	Oneonta, Portville, Bolivar, Allegany, Carrollton, Salamanca, Shinglehouse, Bradford, Lewis Run (Pa.).	Western New York and Pennsylvania Traction Co.	Jan. 1, 1907	Dec. 31, 1907	147.71	82.38	2,000,000	2,000,000
73a	do.	Shinglehouse R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	15.23		40,000	40,000
74	Oneida, Utica, Dewitt, Syracuse.	Oneida Ry.	Jan. 1, 1907	Dec. 31, 1907	115.45	115.45	2,000,000	2,000,000
75	Oneonta, Cooperstown, Richfield Springs, Mohawk.	Oneonta and Mohawk Valley R. R.	Jan. 1, 1907	Dec. 31, 1907	68.33	111.21	1,800,000	1,800,000
76	Oswining.	Hudson River and Eastern Traction Co.	Jan. 24, 1907	Dec. 31, 1907	2.45	2.45	1,000,000	84,000
77	Oswego, Mineito.	Westchester Traction Co.	July 1, 1906	June 30, 1907	11.15	11.15	300,000	300,000
	Paul Smiths.	Paul Smith's Electric Light, Power and R. R. Co.						
78	Peekskill, Verplanck, Shrub Oak.	Peekskill Lighting and R. R. Co.	July 1, 1906	June 30, 1907	10.37	10.37	650,000	650,000
79	Peekskill, Cortlandville.	Putnam and Westchester Traction Co.	Mar. 1, 1907	Dec. 31, 1907	2.79	2.79	75,000	75,000
80	Penn Yan, Branchport.	Penn Yan, Kauka Park and Branchport Ry. Co.	July 1, 1906	June 30, 1907	9.25	9.25	100,000	94,000
81	Plattsburg, Bluff Point.	Plattsburgh Traction Co.	July 1, 1906	June 30, 1907	7.65	7.65	100,000	100,000
82	Port Chester, Larchmont, New Rochelle.	New York and Stamford Ry. Co.	July 1, 1906	June 30, 1907	16.31	22.32	500,000	500,000
83	Port Jervis.	Port Jervis Electric Light, Power, Gas and R. R. Co.	July 1, 1906	June 30, 1907	4.35	4.35	450,000	450,000
84	Poughkeepsie, Wappingers Falls.	Poughkeepsie City and Wappingers Falls Electric Ry. Co.	July 1, 1906	June 30, 1907	17.33	17.33	750,000	750,000
85	Rensselaer.	Cohoes Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	116.73	2.06	120,000	120,000

¹ This company has also a floating debt.

² This track in subway which is leased from city of New York.

³ Includes permanent or other investments.

⁴ Exclusive of cost of subway owned by city of New York, \$46,774,795; including this the total liability was \$1,082,967.

⁵ Dividends not paid on entire amount outstanding.

⁶ Includes 2.41 miles on bridge owned by city of New York.

⁷ Includes permanent or other investments. This company has also a floating debt.

⁸ For all companies (numbers 51 to 58, inclusive, of this table) of the Brooklyn Rapid Transit system, exclusive of the capital of the holding company, the capitalization per mile of track was \$182,918.

⁹ Includes 3.60 miles on bridge owned by city of New York.

¹⁰ Dividends of 44 per cent on \$82,500 and 10 per cent on \$17,500.

¹¹ This company owns no track, but generates current and does construction and repair work for other companies of the Brooklyn Rapid Transit system.

¹² Entire trackage (3.59 miles) on bridge owned by city of New York.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.	
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.				
Par value.		Dividends.		Par value.		Dividends.								
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.							
\$300,000	\$300,000							\$300,000	\$300,000	5	1 900,000	825,435	46	
800,000	500,000							300,000	500,000	5	1 1,000,000	26,035	47	
35,000,000	35,000,000	9	\$3,100,000					25,000,000	25,000,000	4.5	2 60,000,000	1 837,499	48	
60,000,000	60,999,700	7	5 4,116,000					51,818,000	39,567,000	4.5, 6	3 90,000,700	257,750	48a	
50,000	50,000							27,750	27,750	6	77,750	51,833	49	
50,000	50,000							27,873	27,873	6	77,873	38,967	50	
200,000	200,000							250,000	250,000	5	7 450,000	5 84,162	51	
12,000,000	12,000,000	10	1,200,000					6,925,000	6,925,000	4.4, 5.5	18,925,000	225,887	51a	
8,500,000	8,500,000			\$6,500,000	\$6,500,000	4	\$280,000	19,274,040	15,000,040	4.5	30,000,040	451,115	52	
13,000,000	13,000,000			5,000,000	5,000,000	5	250,000	23,000,000	23,000,000	4.5	41,000,000	150,490	53	
250,000	250,000										250,000		54	
15,000,000	2,000,000							8,240,000	6,624,000	5	8,624,000		54a	
500,000	500,000										500,000		55	
500,000	250,000							950,000	950,000	4.5	1,200,000		55a	
100,000	100,000	4, 10	10 5,462								100,000		55b	
80,000	80,000	4.5	2,250								80,000		55c	
650,000	650,000							650,000	650,000	4	1,800,000	91,614	56	
250,000	250,000										250,000	51,046	57	
500,000	500,000										500,000		58	
100,000	100,000										100,000	27,855	59	
2,000,000	2,000,000							10,000,000	3,500,000	4	5 5,500,000	195,101	60	
2,000,000	1,923,400							2,000,000	2,000,000	5	3,923,400		60a	
200,000	200,000	5	10,000					75,000	65,000	5	265,000	117,778	61	
50,000	50,000										50,000	90,909	62	
5,000,000	3,235,000							12,200,000	3,000,000	4.5, 6	1 6,235,000	83,725	63	
600,000	600,000							600,000	600,000	5	1,200,000	44,877	64	
50,000	35,000							20,000	20,000	5	1 55,000	8,462	65	
1,000,000	1,000,000							1,000,000	1,000,000	5	2,000,000	72,254	66	
3,000,000	2,871,750							2,500,000	2,200,000	4	10 3,071,750	163,499	67	
250,000	250,000							150,000	21,000	5	1 271,000	67,750	68	
80,000	80,000										80,000	28,070	69	
1,000,000	1,000,000							1,000,000	1,000,000	5	1 2,000,000		70	
150,000	134,000							150,000	124,000	6	1 208,000	96,790	70a	
50,000	45,000										45,000	16,423	71	
150,000	150,000							150,000	150,000	6	300,000	30,000	72	
1,000,000	1,000,000			1,000,000	1,000,000			2,800,000	2,653,000	5	1 4,653,000		73	
												57,696		
40,000	40,000							75,000	60,000	5	100,000		73a	
2,000,000	2,000,000							10,000	10,000	4	2,010,000	232,908	74	
1,800,000	1,800,000							1,800,000	1,300,000	3	3,100,000	46,738	75	
1,000,000	84,000							1,000,000	75,000	5	1 150,000	64,696	76	
200,000	200,000			100,000	100,000			300,000	288,000	3.5	1 888,000	52,735	77	
100,000	80,000	2	10,000	150,000	150,000	6	9,000	750,000	583,000	5	1 1,283,000	118,901	78	
75,000	75,000							200,000	60,000	5	1 135,000	48,287	79	
100,000	94,000							100,000	100,000	5	1 194,000	20,973	80	
100,000	100,000							100,000	80,000	6	1 180,000	22,829	81	
500,000	500,000							450,000	426,000	5	1 926,000	56,775	82	
450,000	450,000							350,000	285,000	5	1 735,000	108,966	83	
750,000	750,000							500,000	305,000	5	1 1,116,000	64,297	84	
120,000	120,000							85,000	84,000	5	204,000	30,312	85	

²⁰ Operations largely confined to summer season.

²¹ Includes 0.36 mile leased from steam railroad.

²² Includes electric-light plant and permanent or other investments. This company has also a floating debt.

²³ Includes 17.43 miles in Pennsylvania.

²⁴ Entire trackage (5.23 miles) in Pennsylvania.

²⁵ Includes 105.82 miles leased from steam railroad.

²⁶ Road was still under construction.

²⁷ Not operated during census year.

²⁸ Operated by steam during 1907 and not electrified until close of year.

²⁹ Operated by the Connecticut Company of New Haven (Connecticut).

³⁰ Includes electric-light plant and permanent or other investments.

³¹ Track owned is leased to and operated by the United Traction Co.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
NEW YORK—Continued.								
86	Rochester, Irondequoit, Ontario Beach, Webster, Wallington, Sodus Point.	Rochester Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	116.30	182.45	\$6,000,000	\$6,000,000
86a		Rochester and Sodus Bay Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	46.08		1,860,000	1,860,000
86b		Rochester Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	9.58		200,000	200,000
87	Rochester, Charlotte, Manitou Beach.	Rochester, Charlotte and Manitou R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	7.75	7.75	100,000	97,500
88	Rochester, Fairport, Palmyra, Lyons, Clyde.	Rochester, Syracuse and Eastern R. R. Co.	Nov. 1, 1906	June 30, 1907	71.73	71.73	8,500,000	6,372,500
89	Rochester, Pittsford, Canandaigua, Geneva.	Rochester and Eastern Rapid Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	44.94	22.37	1,600,000	1,600,000
89a		Ontario Light and Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.73		130,000	130,000
90	Rochester, Sea Breeze Park, Windsor Beach.	Rochester and Suburban Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	420.11	14.35	420,000	420,000
91	Roslyn, Mineola.	New York and North Shore Traction Co.	Nov. 18, 1907	Dec. 31, 1907	4.21	4.21	150,000	150,000
92	Schenectady, Albany, Troy, Watervliet, Ballston.	Schenectady Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	121.50	132.10	7,000,000	4,100,000
93	Sea Cliff.	Nassau County Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.60	1.60	50,000	35,000
94	Seneca Falls, Waterloo, Geneva.	Seneca Falls, Waterloo, Seneca Falls and Cayuga Lake Traction Co.	July 1, 1906	June 30, 1907	17.75	17.75	450,000	450,000
95	Syracuse and suburbs.	Syracuse Rapid Transit Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	80.40	87.35	4,000,000	4,000,000
95a		East Side Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	6.95		300,000	300,000
96	Syracuse, Jameville, Fayetteville, Edwards Falls.	Syracuse and Suburban R. R. Co.	July 1, 1906	June 30, 1907	18.08	18.08	400,000	400,000
97	Syracuse, Baldwinsville.	Syracuse, Lake Shore and Northern R. R. Co.	July 1, 1906	June 30, 1907	21.12	21.12	3,500,000	1,268,000
98	Syracuse, Skaneateles, Auburn.	Auburn and Syracuse Electric R. R. Co.	July 1, 1906	June 30, 1907	54.83	57.28	2,000,000	1,950,000
98a		Auburn and Northern Electric R. R. Co. (lessor).	July 1, 1906	June 30, 1907	2.45		1,500,000	10,000
99	Utica, Rome, Clinton, Herkimer, Little Falls.	Utica and Mohawk Valley Ry. Co., including Rome City Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	119.91	124.92	7,500,000	7,500,000
100	Watertown, Dexter.	Black River Traction Co.	July 1, 1906	June 30, 1907	10.47	10.47	105,000	105,000
101	Waverly, Wellsburg.	Elmira, Corning and Waverly R. R.	Aug. 1, 1907	Dec. 31, 1907	10.17	10.17	2,500,000	336,900
	Waverly.	Waverly, Sayre and Athens Traction Co. (See Pennsylvania.)						
NORTH CAROLINA.								
Total for state.					106.94		5,851,000	4,409,800
1	Asheville, Biltmore.	Asheville Electric Co.	Jan. 1, 1907	Dec. 31, 1907	14.95	14.95	750,000	532,500
2	Asheville and vicinity.	Asheville Rapid Transit Co. ¹⁰	Jan. 1, 1907	Dec. 31, 1907	19.11	8.11	500,000	100,000
3	Charlotte.	Charlotte Electric Railway, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	18.50	18.50	500,000	60,000
4	Durham.	Durham Traction Co.	Jan. 1, 1907	Dec. 31, 1907	6.20	6.20	500,000	500,000
5	Fayetteville.	Fayetteville Street Railway and Power Co.	Oct. 1, 1907	Mar. 31, 1908	1.25	1.25	100,000	100,000
6	Greensboro.	Greensboro Electric Co.	Oct. 1, 1906	Sept. 30, 1907	11.50	11.50	600,000	386,200
7	Hendersonville.	Laurel Park Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	1.50	1.50	125,000	10,000
8	Raleigh.	Raleigh Electric Co. ¹¹	Jan. 1, 1907	Dec. 31, 1907	17.02	6.52	75,000	75,000
9	Salisbury, Spencer.	Salisbury and Spencer Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	4.25	4.25	400,000	400,000
10	Wilmington, Wrightsville Beach.	Tide Water Power Co.	Jan. 1, 1907	Dec. 31, 1907	4.11	22.66	1,200,000	1,150,500
10a		Consolidated Railways, Light and Power Co. (lessor). ¹²	July 1, 1907	Dec. 31, 1907	18.55		500,000	450,000
11	Winston-Salem.	Fries Manufacturing and Power Co. ¹³	Dec. 1, 1906	Nov. 30, 1907	11.00	11.00	701,000	675,600
NORTH DAKOTA.								
Total for state.					16.00		385,000	284,900
1	Blismarek.	State of North Dakota Electric Ry.	Jan. 1, 1907	Dec. 31, 1907	1.50	1.50	20,000	20,000
2	Fargo, Moorhead (Minn.).	Fargo and Moorhead Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	10.34	10.34	300,000	300,000
3	Grand Forks, University.	Grand Forks Transit Co.	Jan. 10, 1907	Jan. 9, 1908	2.25	2.25	15,000	14,980
4	Valley City.	Valley City Street and Interurban Ry. Co.	June 20, 1907	June 19, 1908	2.00	2.00	50,000	50,000
OHIO.								
Total for state.					2,767.10		260,828,500	230,845,875
1	Akron, Wadsworth, Canton, Massillon, New Philadelphia, Uhrichsville, Ravenna, Bedford, Cleveland.	Northern Ohio Traction and Light Co.	Jan. 1, 1907	Dec. 31, 1907	214.53	214.53	10,000,000	8,948,800
2	Alliance, Canton, Salem.	Stark Electric R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	34.42	34.42	1,000,000	1,000,000
3	Ashtabula.	Ashtabula Rapid Transit Co.	Jan. 1, 1907	Dec. 31, 1907	5.59	5.59	500,000	500,000

¹ Operations largely confined to summer season.² This company has also a floating debt.³ Amount apportioned to railway department.⁴ Includes 2.20 miles leased to and operated by Rochester Ry. Co.⁵ Includes permanent or other investments. This company has also a floating debt.⁶ Includes 11.30 miles leased from steam railroad.⁷ Includes permanent or other investments.⁸ Dividends paid on \$2,744,200 only.⁹ Dividends paid on \$1,189,872 only.¹⁰ Dividends paid on \$825,000 only.¹¹ Road was under construction. The Auburn and Syracuse Electric R. R. operated the 2.45 miles of track pending completion of entire road.¹² Includes 12.94 miles leased from steam railroad.¹³ Includes 2.41 miles leased from steam railroad, and 0.50 mile not operated. Total operated in state, 106.44 miles.¹⁴ Exclusive of 2.41 miles of track leased from steam railroad, and permanent or other investments, such as securities of other electric street railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,355,259.¹⁵ Includes electric-light plant and permanent or other investments. This company has also a floating debt.¹⁶ Includes Asheville Loop Line Ry. Co. operated independently from January 1, 1907, to May 7, 1907.¹⁷ Includes 2.41 miles leased from steam railroad.¹⁸ Includes electric-light plant and permanent or other investments.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$3,000,000	\$3,000,000	4	\$120,000	\$3,000,000	\$3,000,000	5	\$150,000	\$4,375,000	\$4,375,000	5	\$10,375,000		86
1,100,000	1,100,000			750,000	750,000	4	30,000				1,860,000	\$72,235	86a
200,000	200,000	12½	24,327					82,000	81,250	5	200,000		86b
100,000	97,500										\$178,750	23,055	87
6,000,000	4,750,000			2,500,000	1,622,500			7,500,000	2,757,000	5	9,129,500	127,278	88
1,500,000	1,500,000							1,500,000	1,500,000	5	\$3,000,000		89
130,000	130,000							\$63,000	\$57,000	3½	\$87,000	64,758	89a
70,000	70,000			350,000	350,000			450,000	450,000	5	\$870,000	43,252	90
150,000	150,000										150,000	35,629	91
7,000,000	4,100,000							2,000,000	2,000,000	4½	\$6,100,000	55,354	92
50,000	35,000										35,000	21,875	93
350,000	350,000			100,000	100,000			500,000	450,000	4	900,000	50,704	94
2,750,000	2,750,000	3	\$82,443	1,250,000	1,250,000	6	\$70,188	4,750,000	3,699,000	5	\$7,999,000		95
300,000	300,000							250,000	220,000	5	550,000	96,726	95a
400,000	400,000							950,000	550,000	5	950,000	52,544	96
2,500,000	850,000			1,000,000	418,000			2,500,000			\$1,208,000	60,438	97
1,250,000	1,250,000			750,000	700,000	5½	\$35,538	2,000,000	1,345,000	5	\$3,295,000		98
1,000,000	10,000			500,000				1,000,000	10,000		\$3,295,000	57,099	98a
5,000,000	5,000,000			2,500,000	2,500,000	5	125,000	5,050,000	3,157,000	4½	10,657,000	99,063	99
105,000	105,000										105,000	10,029	100
2,500,000	235,900							1,500,000	800,000	5	1,126,900	111,790	101
4,551,000	3,353,100		17,500	1,300,000	1,056,700		5,000	8,101,250	3,887,750		8,297,550	\$64,214	
750,000	532,500							750,000	750,000	5	\$1,282,500	85,786	1
500,000	100,000							500,000	10,000	5	\$110,000	19,298	2
500,000	60,000							2,000,000	750,000	5	\$810,000	43,784	3
300,000	300,000			200,000	200,000			400,000	350,000	5	\$850,000	137,097	4
100,000	100,000										100,000	80,000	5
250,000	250,000			250,000	106,200			750,000	365,500	5	\$721,700	62,757	6
125,000	10,000										10,000	6,667	7
75,000	75,000							\$151,250	\$151,250	5,6	\$235,250	32,229	8
400,000	400,000							370,000	370,000	5	\$770,000	181,176	9
600,000	600,000			600,000	550,500			2,000,000			\$1,150,500		10
350,000	350,000	5	17,500	150,000	100,000	5	5,000	600,000	600,000	5	\$1,050,000	97,109	10a
\$601,000	\$573,600			100,000	100,000			\$580,000	\$541,000	5,6	\$1,216,600	110,600	11
285,000	284,980							300,000	300,000		604,980	42,572	
\$20,000	\$20,000										\$20,000	13,333	1
300,000	300,000							300,000	300,000	5,6	600,000	58,027	2
15,000	14,980										\$11,980	6,658	3
30,000	50,000										50,000	25,000	4
212,088,500	190,033,050		3,114,766	48,740,000	40,812,825		1,039,401	166,900,000	116,280,000		347,134,875	\$70,901	
10,000,000	8,948,000	2	\$128,778					16,428,000	10,344,000	4,5,6	\$19,292,600	89,930	1
1,000,000	1,000,000							1,000,000	1,000,000	5	2,000,000	58,106	2
500,000	500,000							500,000	250,000	6	750,000	134,168	3

¹⁰ Includes electric department of Raleigh Ice and Electric Co., which is leased to and operated by Raleigh Electric Co.

¹¹ Includes 0.50 mile constructed but not operated.

¹² Includes \$60,000 bonds of Raleigh Ice and Electric Co., whose electric-light plant is leased to and operated by Raleigh Electric Co.

¹³ Includes electric-light plant. This company has also a floating debt.

¹⁴ This company operated independently from January 1, 1907, to June 30, 1907; statistics for this period are included in report for Tide Water Power Co.

¹⁵ Includes Winston-Salem Power Co., which is leased to and operated by this company.

¹⁶ Includes \$1,000 stock of Winston-Salem Power Co., which is leased to and operated by Fries Manufacturing and Power Co.

¹⁷ Includes \$80,000 bonds of Winston-Salem Power Co., which is leased to and operated by Fries Manufacturing and Power Co.

¹⁸ Includes 2.43 miles lying outside of state. Total operated in state, 13.66 miles.

¹⁹ Cash invested by state.

²⁰ Includes 2.43 miles in Minnesota.

²¹ Includes 2 miles leased from steam railroad, 4.64 miles on viaducts owned by city of Cleveland, 4.41 miles not operated, and 146.91 miles lying outside of state, but

exclusive of 57.67 miles in state owned by outside companies. Total operated in state, 3,671.45 miles.

²² Exclusive of 2 miles of track leased from steam railroad, 4.64 miles on viaducts owned by city of Cleveland, and permanent or other investments, such as securities of

other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$40,671,014.

²³ Stock not all outstanding the entire year.

²⁴ Includes electric-light plant.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
OHIO—Continued.								
4	Ashtabula, Conneaut, Jefferson, Bellare.	Pennsylvania and Ohio Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	26.62	26.62	\$1,600,000	\$1,300,000
5	Bowling Green, Woodville, Pemberville, Bridgeport.	Bellare Southwestern Traction Co. (See West Virginia.) Lake Erie, Bowling Green and Napoleon Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	20.00	20.00	1,000,000	630,400
6	Cambridge, Bynessville.	Wheeling and Western Ry. Co. (See West Virginia.) Cambridge Power, Light and Traction Co.	Jan. 1, 1907	Dec. 31, 1907	9.53	9.53	300,000	300,000
7	Chillicothe.	Chillicothe Electric Railroad, Light and Power Co.	Jan. 1, 1907	Dec. 31, 1907	5.20	5.20	100,000	100,000
8	Cincinnati and vicinity.	Cincinnati Traction Co.	Jan. 1, 1907	Dec. 31, 1907		219.85	2,000,000	2,000,000
8a	do.	Cincinnati Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	219.85		20,000,000	18,511,950
9	Cincinnati.	Price Hill Inclined Plane R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	.61	.61	75,000	75,000
10	Cincinnati (Andersons Ferry), Harrison, Aurora, (Ind.).	Cincinnati, Lawrenceburg and Aurora Electric Street R. R. Co.	May 1, 1906	Apr. 30, 1907	139.39	39.39	1,000,000	800,000
11	Cincinnati, Hamilton, Dayton.	Cincinnati Northern Traction Co.	Jan. 1, 1907	Dec. 31, 1907		85.27	500,000	500,000
11a	do.	Cincinnati, Dayton and Toledo Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	85.27		5,250,000	5,220,000
12	Cincinnati (Norwood), Hillsboro Cincinnati, Hamilton.	Cincinnati and Columbus Traction Co. Ohio Traction Co. (holding Co. and operating Cincinnati and Hamilton Traction Co.)	May 1, 1907 Jan. 1, 1907	Apr. 30, 1908 Dec. 31, 1907	56.00 36.06	56.00 36.06	2,500,000 20,000,000	1,889,300 16,400,000
13a	do.	Cincinnati and Hamilton Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	36.06		2,200,000	2,200,000
14	Cincinnati, Milford Blanchester.	Cincinnati, Milford and Loveland Traction Co.	Jan. 1, 1907	Dec. 31, 1907	34.07	40.35	1,650,000	1,649,425
15	Cincinnati, New Richmond, Bethel, Lebanon, Cincinnati.	Interurban Railway and Terminal Co.	Oct. 1, 1906	Sept. 30, 1907	101.00	121.30	2,300,000	2,500,000
16	Cleveland and vicinity.	Miami and Erie Canal Transportation Co.						
17	Cleveland.	Cleveland Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	251.38	251.38	23,400,000	23,400,000
18	do.	Low Fare Ry. Co.	Apr. 23, 1907	Dec. 31, 1907	.75	4.75	250,000	32,900
18a	do.	Municipal Traction Co.	Jan. 1, 1907	Dec. 31, 1907		23.00	10,000	10,000
19	do.	Forest City Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	23.00		2,000,000	1,300,000
20	Cleveland, Chagrin Falls, Char-don, Middletown, Garrettsville, Cleveland, Elyria, Lorain, Wallington, Norwalk, Medina, Wooster, Mansfield, Crestline, Galion, Bucyrus.	Eastern Ohio Traction Co.	Jan. 1, 1907	Dec. 31, 1907	82.78	82.78	2,500,000	2,200,000
21	Cleveland, Painesville, Fairport.	Cleveland, Southwestern and Columbus Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	179.50	179.50	10,000,000	6,100,000
22	Cleveland, Painesville, Fairport.	Cleveland, Painesville and Eastern R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	45.09	1945.09	2,000,000	1,606,000
23	Columbus.	Columbus, Urbana and Western Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.76	8.76	2,000,000	380,500
24	Columbus and Gahanna.	Columbus, New Albany and Johnstown Traction Co.	Jan. 1, 1907	Dec. 31, 1907	6.20	8.90	600,000	400,000
24a	Columbus and Westerville.	Columbus Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907		142.13	5,000,000	5,000,000
24b	do.	Columbus Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	113.89		7,000,000	6,340,000
25	Columbus and a suburban point.	Columbus Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	14.50		1,000,000	750,000
26	Columbus, Circleville, Chillicothe, Lancaster.	Ohio and Southern Traction Co.	Sept. 2, 1907	Dec. 31, 1907	4.56	4.56	90,000	76,500
27	Columbus, Delaware, Marion.	Scioto Valley Traction Co.	Apr. 1, 1906	Mar. 31, 1907	74.26	82.00	3,000,000	2,980,500
28	Columbus, Delaware, Marion, Columbus, Newark, Zanesville, Morgan, Springfield, Dayton, Bellefontaine, Lima, Delaware, Deshler, Fort Wayne, Union City, Richmond (Indiana).	Columbus, Delaware and Marion Ry. Co. Ohio Electric Ry. Co.	Mar. 1, 1907 Jan. 1, 1907	Feb. 20, 1908 Dec. 31, 1907	56.71 35.00	61.71 504.17	2,500,000 25,000,000	2,500,000 16,000,000
28a	do.	Indiana, Columbus and Eastern Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	240.87		12,000,000	12,000,000
28b	do.	Columbus, Newark and Zanesville Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	102.45		6,250,000	6,250,000
28c	do.	Dayton and Western Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	38.91		1,750,000	1,457,500
28d	do.	Fort Wayne, Van Wert and Lima Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	62.50		2,000,000	2,000,000
29	Dayton and suburbs.	Lima Electric Railway and Light Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	13.27		1,250,000	1,250,000
30	do.	City Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	33.55	33.55	3,000,000	2,795,900
31	Dayton.	Peoples Ry. Co.	July 1, 1906	June 30, 1907	31.14	31.14	1,100,000	1,100,000
32	Dayton, Troy, Piqua.	Oakwood Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.30	8.30	500,000	500,000
33	Dayton, West Milton, Covington, Piqua.	Dayton and Troy Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	32.50	50.20	1,000,000	1,000,000
34	Dayton, Xenia, Spring Valley.	Miami Valley Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	13.90		300,000	300,000
35	Dayton, Xenia, Spring Valley.	Dayton, Covington and Piqua Traction Co.	July 1, 1906	June 30, 1907	32.57	36.65	1,150,000	1,150,000
36	Dayton, Xenia, Spring Valley.	Dayton and Xenia Transit Co.	Apr. 1, 1906	Mar. 31, 1907	50.12	53.01	800,000	800,000
37	Defiance.	Peoples Gas and Electric Co.	Jan. 1, 1907	Dec. 31, 1907	4.06	4.06	4,500	4,500
38	Delaware, Magnolia Springs, Richwood.	Columbus, Magnolia Springs and Northern Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	17.37	18.48	400,000	179,300
39	Dennison, Uhrichsville.	United Electric Co.	Jan. 1, 1907	Dec. 31, 1907	2.13	2.13	100,000	28,400
40	East Liverpool, Wellsburg, Chester (W. Va.).	East Liverpool Traction and Light Co.	Jan. 1, 1907	Dec. 31, 1907	28.85	28.85	3,000,000	3,000,000
41	Fostoria, Findlay, Pemberville.	Toledo, Fostoria and Findlay Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	23.08	34.08	1,500,000	960,000

¹ Includes electric-light plant and permanent or other investments.

² Includes electric-light plant. This company has also a floating debt.

³ This company has also a floating debt.

⁴ Includes 9.13 miles in Indiana.

⁵ Includes permanent or other investments. This company has also a floating debt.

⁶ Includes permanent or other investments.

⁷ Not operated during census year.

⁸ Includes 4.64 miles on viaducts owned by city of Cleveland.

⁹ Includes electric-light plant and permanent or other investments. This company has also a floating debt.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$1,000,000	\$1,300,000							\$900,000	\$900,000	5	\$2,200,000	\$62,645	4
750,000	380,400			\$250,000	\$250,000			1,000,000	261,000	5	1,891,400	44,570	5
300,000	300,000							200,000	200,000	5	1,500,000	52,456	6
100,000	100,000							75,000	75,000	6	1,175,000	32,654	7
2,000,000	2,000,000	5	\$100,000								2,000,000	93,300	8
20,000,000	18,511,950	6 1/2	1,124,337								18,511,950	122,951	9
75,000	75,000			250,000	50,900	6	\$3,034	750,000	780,000	5	1,540,900	39,373	10
750,000	750,000												
500,000	500,000			250,000	250,000	5	12,500	5,000,000	5,000,000	5, 6	5,000,000	128,070	11
5,000,000	5,000,000		37,500								10,250,000		11a
1,250,000	925,000			1,250,000	934,500	5					1,650,500	33,205	12
10,000,000	8,800,000			10,000,000	7,900,000	5	205,000				10,400,000		13
1,100,000	1,100,000	2	22,000	1,100,000	1,100,000	5	55,000				2,200,000	515,807	13a
1,000,000	1,000,000			650,000	649,425			500,000	363,500	5	2,012,925	59,082	14
2,800,000	2,800,000							2,500,000	985,000	5	2,485,000	34,806	15
23,400,000	23,400,000	3 1/2	819,000					8,025,000	8,025,000	5	31,420,000	127,265	16
250,000	52,900										52,900	70,533	17
10,000	10,000										10,000		18
2,000,000	1,300,000	6	78,000								1,300,000	66,957	18a
2,500,000	2,500,000							2,500,000	2,490,000	5, 6	4,990,000	60,280	19
7,500,000	3,700,000			2,500,000	2,400,000			10,000,000	3,760,000	5, 6	9,800,000	54,930	20
2,000,000	1,605,000							2,000,000	1,631,000	5, 6	3,237,000	71,790	21
2,000,000	390,500							2,000,000	418,500	5	799,000	91,210	22
400,000	200,000			200,000	200,000	1	2,000	450,000	40,000	5	440,000	70,968	23
5,000,000	5,000,000	2 1/2	125,000								5,000,000		24
3,500,000	3,000,000	5	150,000	3,500,000	3,500,000	5	175,000	7,000,000	6,992,000	5	13,492,000	153,706	24a
500,000	500,000			500,000	250,000			500,000	500,000	5	1,250,000	60,241	24b
90,000	76,500										76,500	16,776	25
1,800,000	1,800,000			1,200,000	1,180,500	5	59,025	5,000,000			2,980,500	40,136	26
2,500,000	2,500,000							2,500,000	2,500,000	5	5,000,000		27
12,500,000	8,000,000			12,500,000	8,000,000			2,750,000	1,750,000	5	17,750,000	88,168	28
11,000,000	11,000,000			1,000,000	1,000,000	5	16,067	12,000,000	7,568,000	5	19,568,000		28a
5,750,000	5,750,000			500,000	500,000	6	30,000	6,250,000	4,250,000	5	10,500,000	111,058	28b
900,000	607,500	5	30,375	850,000	850,000	5	42,500				1,457,500		28c
1,000,000	1,000,000			1,000,000	1,000,000	2	20,000	3,000,000	1,400,000	5	3,400,000		28d
1,250,000	1,250,000	1	12,500					1,250,000	1,250,000	5	2,500,000		28e
2,400,000	2,185,900	7	153,713	800,000	800,000	6	36,000	65,000	65,000	6	2,990,900	85,273	29
1,100,000	1,100,000	7	77,000					500,000	500,000	5	1,600,000	51,381	30
500,000	500,000	5	25,000	500,000	500,000	5	25,000				500,000	60,241	31
500,000	500,000	2	10,000								1,000,000	26,078	32
300,000	300,000	3 1/2	9,000	550,000	550,000			610,000	510,000	5, 6	1,660,000	50,967	33
600,000	600,000												
650,000	650,000			150,000	150,000			870,000	800,000	5	1,670,000	31,923	34
18,500	18,500			200,000	150,000			400,000	205,000	5	5,410,000	2,084	35
200,000	29,200										394,200	22,119	36
100,000	28,400										28,400	13,333	37
2,500,000	2,500,000			500,000	500,000			3,000,000	2,410,000	5	5,410,000	197,523	38
1,250,000	700,000			250,000	250,000	5	19,375	1,500,000	436,000	5	1,936,000	41,898	39

¹⁰ Cars operated by another company at terminus of road owned.¹¹ Includes electric-light plant and permanent or other investments. Construction work was in progress during year.¹² Dividends for part of year only.¹³ Includes bonds of consolidated companies.¹⁴ Includes 22.65 miles in Indiana.¹⁵ Cash investment.¹⁶ Cash investment. This company has also a floating debt.¹⁷ Includes 2 miles in West Virginia.¹⁸ Construction work was in progress during the year.

STREET AND ELECTRIC RAILWAYS.

TABLE 163.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
OHIO—Continued.								
40	Fremont.....	Fremont City Ry. Co.....	Sept. 1, 1907	Dec. 31, 1907	2.20	2.20	\$25,000	\$25,000
41	Lancaster and suburbs.....	Lancaster Traction and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	10.70	10.70	400,000	400,000
42	Lebanon, Franklin.....	Lebanon and Franklin Traction Co.....	June 1, 1906	May 31, 1907	10.84	10.84	160,000	80,000
43	Lima, Wapakoneta, Celina, Minster, Sidney, Piqua, Findlay.....	Western Ohio Ry. Co.....	Oct. 1, 1906	Sept. 30, 1907	110.95	110.95	3,400,000	3,007,500
44	Lorain, Elyria, Beach Park.....	Lorain Street R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	23.00	23.00	2,000,000	2,000,000
45	Mansfield, Shelby.....	Mansfield Railway, Light and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	20.45	20.45	1,000,000	1,000,000
46	Middletown.....	Cincinnati, Hamilton and Dayton Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	1.45	1.45	50,000	5,000
47	Mt. Vernon.....	Mount Vernon Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	9.06	9.06	600,000	400,000
48	Norwalk, Shelby.....	Sandusky, Norwalk and Mansfield Electric Ry. Co.....	May 1, 1907	Apr. 30, 1908	23.00	33.55	600,000	600,000
48a	.....	Plymouth and Shelby Traction Co. (lessor).....	May 1, 1907	Apr. 30, 1908	8.20	.....	200,000	200,000
49	Palmsville, Ashtabula.....	Cleveland, Palmsville and Ashtabula R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	25.70	28.50	1,000,000	1,000,000
50	Pomeroy, Middleport, Racine.....	Ohio River Electric Railway and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	12.59	12.59	300,000	300,000
51	Portsmouth, New Boston.....	Portsmouth Street Railroad and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	10.88	13.38	500,000	250,000
51a	.....	Ohio Valley Traction Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	2.50	.....	10,000	10,000
52	Put in Bay.....	Victory Park Ry.....	Jan. 1, 1907	Dec. 31, 1907	1.50	1.50	50,000	5,000
53	Salem.....	Salem Electric Ry. Co.....	July 1, 1906	June 30, 1907	2.65	2.65	100,000	100,000
54	Springfield.....	Springfield Ry. Co.....	July 1, 1906	June 30, 1907	32.43	32.43	1,000,000	1,000,000
55	Springfield, Troy.....	Springfield, Troy and Piqua Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	30.46	30.46	700,000	70,000
56	Springfield, South Charleston.....	Washington Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	13.00	17.50	800,000	(?)
57	Springfield, Xenia.....	Springfield and Xenia Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	18.50	19.57	600,000	600,000
58	Steubenville, Brilliant, Raylands, Martins Ferry.....	Steubenville and Wheeling Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	* 16.20	12.40	650,000	500,000
59	Steubenville, Toronto.....	Steubenville and East Liverpool Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	17.25	17.25	3,000,000	3,000,000
60	Steubenville.....	Tri-State Traction Co. (See West Virginia.)	Jan. 1, 1907	Dec. 31, 1907	6.38	6.46	50,000	50,000
61	Tiffin.....	Electric Railway and Power Co.....	May 1, 1906	Apr. 30, 1907	17.00	17.00	175,000	175,000
62	Toledo.....	Tiffin, Postoria and Eastern Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	* 115.48	114.97	15,000,000	13,875,000
63	Toledo, Bowling Green, Findlay.....	Toledo Railways and Light Co., including Ottawa Park Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	13.00	56.56	1,000,000	761,700
63a	.....	Toledo Urban and Interurban Ry. Co., Toledo, Bowling Green and Southern Traction Co., including Findlay Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	42.00	.....	1,500,000	1,500,000
64	Toledo, Wauseon, Bryan.....	Toledo and Indiana Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	55.57	59.37	2,500,000	2,500,000
65	Toledo, Fremont, Sandusky, Norwalk, Ceylon, Lorain, Cleveland.....	Lake Shore Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	172.96	* 196.20	7,500,000	7,500,000
65a	.....	Sandusky, Fremont and Southern Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	20.50	.....	2,000,000	2,000,000
66	Toledo, Maumee, Perrysburg, Waterville.....	Maumee Valley Railways and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	21.53	29.49	1,000,000	1,000,000
67	Toledo, Oak Harbor, Port Clinton, Marblehead.....	Toledo, Port Clinton and Lakeside Ry. Co.....	Feb. 1, 1907	Jan. 31, 1908	* 54.35	57.03	1,800,000	1,800,000
68	Toledo, Sylvania, Pioneer, Adrian, Morro (Mich.).....	Toledo and Western R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	* 83.80	90.49	2,000,000	2,000,000
69	Toledo, Toledo Beach (Mich.).....	Toledo, Ottawa Beach and Northern Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	* 16.44	25.80	1,500,000	1,500,000
70	Wellston, Jackson, Hamden.....	Wellston and Jackson Belt Ry. Co. (leased to and operated by The Hocking Valley Ry. Co., steam).....	July 1, 1906	June 30, 1907	28.00	28.00	500,000	255,000
71	Youngstown, Columbiana, Leontia.....	Youngstown and Southern Ry. Co.....	May 1, 1907	Apr. 30, 1908	22.00	22.00	1,800,000	1,800,000
72	Youngstown, Niles, Warren, Leavittsburg, Mineral Ridge, Lowellville, Hubbard, Sharon, Newcastle (Pa.).....	Mahoning and Shenango Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	* 142.62	147.28	10,000,000	10,000,000
72a	.....	Mahoning Valley South Eastern Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	4.65	.....	125,000	125,000
73	Zanesville, Crooksville.....	Southeastern Ohio Railway, Light and Power Co.....	May 1, 1906	Apr. 30, 1907	15.36	15.36	600,000	600,000
OKLAHOMA.								
Total for state.....					100.44	.....	5,150,000	4,145,800
1	Enid.....	Enid City Ry. Co.....	June 3, 1907	Dec. 31, 1907	7.80	7.80	200,000	200,000
2	Guthrie.....	Guthrie Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	6.50	6.50	300,000	300,000
3	McAlester, Hartshorne.....	Choctaw Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	20.30	20.30	500,000	500,000
4	Muskogee and suburbs.....	Muskogee Electric Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	13.18	13.18	300,000	245,800
5	Oklahoma City.....	Oklahoma Interurban Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	3.10	3.10	1,000,000	* 50,000
6	Oklahoma City and suburbs.....	Oklahoma Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	32.90	32.90	2,150,000	2,150,000
7	Shawnee, Tecumseh.....	Shawnee-Tecumseh Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	11.20	11.20	500,000	500,000
8	Tulsa.....	Tulsa Street Railway Co.....	May 28, 1907	Dec. 31, 1907	5.40	5.40	200,000	200,000

* Dividends paid on \$138,000 only.

* This company has also a floating debt.

* Includes electric-light plant and permanent or other investments. This company has also a floating debt.

* Includes electric-light plant.

* Includes electric-light plant. This company has also a floating debt.

* Operations largely confined to summer season.

* Stock issued, but no payment made.

* Includes 3.90 miles owned but not operated.

* Includes 0.51 mile owned but not operated.

* Dividends paid on \$12,000,000 only.

* Dividends for part of year only.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$25,000	\$25,000										\$25,000	\$11,364	40
200,000	200,000			\$200,000	\$200,000	6	18,280				400,000	37,383	41
160,000	80,000										80,000	7,380	42
3,000,000	3,000,000			400,000	7,300			\$3,000,000	\$2,853,000	5	\$5,860,500	52,821	43
2,000,000	2,000,000							2,000,000	1,250,000	5.6	3,250,000	141,304	44
650,000	650,000			350,000	350,000			1,000,000	942,000	5	\$1,942,000	94,963	45
50,000	5,000										5,000	3,448	46
600,000	400,000							635,000	213,500	5.6	\$613,500	67,715	47
360,000	360,000			240,000	240,000			600,000	600,000	5	\$1,200,000	48,048	48
200,000	200,000							200,000	200,000	5	400,000		49a
1,000,000	1,000,000							1,000,000	850,000	5	\$1,850,000	71,984	49
300,000	300,000							315,000	315,000	5	615,000	48,848	50
500,000	250,000							250,000	225,000	5	\$475,000		51
10,000	10,000										\$10,000	36,248	51a
50,000	5,000							5,000	50,000	6	\$5,000	3,333	52
100,000	100,000							50,000	50,000	6	\$50,000	56,604	53
1,000,000	1,000,000	2½	\$25,000					500,000	500,000	6	\$1,500,000	46,831	54
700,000	70,000										\$70,000	2,298	55
800,000	(1)							800,000	245,000	5	245,000	18,846	56
300,000	300,000			300,000	300,000			650,000	650,000	5	800,000	32,432	57
650,000	500,000										1,150,000	70,532	58
3,000,000	3,000,000							3,000,000	2,650,000	5	\$5,650,000	327,536	59
50,000	50,000										\$50,000	7,837	60
175,000	175,000	5	8,760					175,000	175,000	5	350,000	20,588	61
15,000,000	13,875,000	1	\$120,000					14,500,000	14,500,000	4.5	\$28,375,000	245,714	62
1,000,000	761,700	1	\$5,713					1,000,000	800,000	5	\$1,561,700		63
1,500,000	1,500,000	1½	22,500					1,500,000	1,292,500	5	2,792,500	79,081	63a
2,500,000	2,500,000							1,650,000	1,408,000	5	\$3,998,000	71,945	64
4,500,000	4,500,000			3,000,000	3,000,000			7,000,000	6,100,000	5	\$13,600,000	84,281	65
2,000,000	2,000,000							2,000,000	645,000	5	2,645,000		65a
1,000,000	1,000,000							1,000,000	800,000	4½, 5	1,800,000	83,604	66
1,800,000	1,800,000							1,500,000	1,500,000	5	3,300,000	63,037	67
2,000,000	2,000,000							2,000,000	2,000,000	5	\$4,000,000	47,681	68
1,500,000	1,500,000							500,000	500,000	5	2,000,000	121,655	69
300,000	255,000							300,000	300,000	6	\$555,000	19,821	70
1,800,000	1,800,000							1,500,000	907,000	5	2,707,000	123,045	71
6,000,000	6,000,000			4,000,000	4,000,000	3½	150,000	10,000,000	5,250,000	5	\$15,250,000		72
125,000	125,000							125,000	125,000	5	250,000		72a
600,000	600,000							600,000	600,000	5	\$1,200,000	78,125	73
5,000,000	3,995,800		150,000	150,000	150,000			3,100,000	2,029,000		6,174,800	\$50,258	
200,000	200,000										200,000	25,445	1
300,000	300,000							100,000	100,000	5	400,000	61,528	2
500,000	500,000							500,000	450,000	5	950,000	46,708	3
300,000	245,800							500,000	229,000	5	474,800	36,024	4
1,000,000	\$50,000										\$50,000	16,129	5
2,000,000	2,000,000	15	\$120,000	150,000	150,000			1,000,000	950,000	5	3,100,000	94,222	6
500,000	500,000							1,000,000	300,000	5	800,000	71,420	7
200,000	200,000										\$200,000	37,037	8

^aCars operated by another company at terminals of road owned.

^bIncludes permanent or other investments.

^cRoad was under construction and operated only during latter part of year.

^dIncludes 2 miles leased from steam railroad.

^eIncludes 21.77 miles in Michigan.

^fIncludes 11.17 miles in Michigan.

^gIncludes 82.19 miles in Pennsylvania.

^hExclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$22,918.

ⁱCash investment, securities not issued.

^jStock dividend of 15 per cent on \$1,000,000.

^kRoad was still under construction.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.		
			From—	To—	Owned.	Operated.	Total per value.		
							Authorized.	Outstanding.	
OREGON.									
	Total for state.....					123.41		\$22,428,900	\$22,428,900
1	Albany.....	Albany Street Ry. Co. (J. E. Ross, lessee)	Jan. 1, 1907	Dec. 31, 1907	1.02	1.02	\$6,400	\$6,400	
2	Astoria.....	Astoria Electric Co.	Mar. 1, 1907	Feb. 29, 1908	5.10	5.10	300,000	300,000	
3	Eugene.....	Portland, Eugene and Eastern Ry. Co.	Oct. 1, 1907	Dec. 31, 1907	6.50	6.50	1,000,000	300,000	
4	Forest Grove.....	Forest Grove Transportation Co.	Jan. 1, 1907	Dec. 31, 1907	1.95	1.95	10,000	10,000	
5	Oregon City.....	Portland General Electric Co.—Oregon City division (successor to Willamette Falls Ry. Co.).	Jan. 1, 1907	Dec. 31, 1907	4.50	4.50	\$22,500	\$22,500	
6	Portland and vicinity.....	Portland Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	126.36	126.36	6,300,000	6,300,000	
7	Portland, Oregon City, Estacada.....	Portland Railway, Light and Power Co. (operates Oregon Water Power and Ry. Co., successor to Portland City and Oregon Ry. Co.).	Jan. 1, 1907	Dec. 31, 1907	95.53	95.53	15,000,000	15,000,000	
8	Salem.....	Portland General Electric Co.—Salem division (successor to Citizens Light and Traction Co.).	Jan. 1, 1907	Dec. 31, 1907	12.45	12.45	\$90,000	\$90,000	
PENNSYLVANIA.									
	Total for state.....					621.12		320,205,520	296,301,795
1	Allentown, Bethlehem, Nazareth, Slatington, Quakertown, North Wales, Philadelphia.....	Lehigh Valley Transit Co.	July 1, 1906	June 30, 1907	121.66	142.42	8,000,000	8,000,000	
1a		Bethlehem and Nazareth Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	10.00		150,000	150,000	
1b		Quakertown Traction Co. (lessor).	July 1, 1906	June 30, 1907	10.50		300,000	300,000	
2	Altoona, Tyrone, Hollidaysburg.....	Altoona and Logan Valley Electric Ry. Co.	July 1, 1906	June 30, 1907	49.91	49.91	1,500,000	1,500,000	
3	Baden, Leetsdale.....	Pittsburg and Beaver Street Ry. Co.	Sept. 9, 1907	Mar. 31, 1908	14.95	14.95	60,000	60,000	
4	Beaver Falls, New Brighton, Beaver, Rochester, Freedom, Monaca.....	Beaver Valley Traction Co.	Apr. 1, 1907	Mar. 31, 1908	32.12	35.63	1,500,000	1,075,000	
4a		Baden and Conway Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	3.51		12,000	400	
5	Beaver Falls.....	Patterson Heights Street Ry. Co.	July 1, 1906	June 30, 1907	19.34	34	6,000	6,000	
6	Bloomsburg, Berwick, Catawissa.....	Columbia and Montour Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	17.75	17.75	275,000	275,000	
7	Butler and suburbs.....	Butler Passenger Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	13.28	13.28	250,000	250,000	
8	Butler, Mars, Kinta.....	Pittsburg and Butler Street Ry. Co.	May 1, 1907	Dec. 31, 1907	34.00	34.00	1,500,000	1,500,000	
9	Carlisle, Mt. Holly Springs.....	Carlisle and Mount Holly Ry. Co.	July 1, 1906	June 30, 1907	7.75	7.75	100,000	100,000	
10	Chambersburg, Fayetteville.....	Chambersburg and Gettysburg Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	13.60	13.60	225,000	225,000	
11	Charleroi.....	Westside Electric Street Ry. Co.	Oct. 15, 1907	Dec. 31, 1907	1.19	1.50	100,000	100,000	
12	Charleroi, Belle Vernon, Monaca, Fayette City.....	Webster, Monaca, Belle Vernon and Fayette City Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.64	8.64	300,000	300,000	
13	Chester, Cpland, Media, Philadelphia.....	Chester Traction Co.	Jan. 1, 1907	Dec. 31, 1907		32.32	500,000	500,000	
13a		Chester, Darby and Philadelphia Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	7.39		125,000	100,000	
13b		Chester and Delaware Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.00		100,000	50,000	
13c		Union Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	10.22		100,000	100,000	
13d		Chester and Media Electric Ry. Co. (lessor).	July 1, 1906	June 30, 1907	5.37		100,000	100,000	
13e		Chester Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	7.55		150,000	150,000	
14	Chester, Ridley.....	Philadelphia and Chester Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.73	8.73	350,000	350,000	
15	Clairton.....	Clairton Street Ry. Co.	July 1, 1906	June 30, 1907	1.00	1.00	30,000	30,000	
16	Coatesville, Parkersburg.....	Philadelphia, Coatesville and Lancaster Passenger Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.70	6.70	600,000	600,000	
17	Corry, Columbus.....	Corry and Columbus Street Ry. Co.	July 1, 1906	June 30, 1907	5.00	5.00	30,000	30,000	
18	Danville, Walnutport.....	Blue Ridge Traction Co.	July 1, 1906	June 30, 1907	7.34	7.34	750,000	200,000	
19	Danville.....	Danville and Sunbury Transit Co.	May 1, 1907	Apr. 30, 1908	1.70	1.70	72,000	57,000	
20	Derry, Latrobe.....	Westmoreland County Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	7.12	7.12	500,000	500,000	
21	Doylestown, Easton.....	Philadelphia and Easton Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	32.57	32.57	630,000	612,400	
22	Du Bois.....	Du Bois Traction Co.	Jan. 1, 1907	Dec. 31, 1907	6.00	6.00	50,000	50,000	
23	Du Bois, Sykesville.....	United Traction Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	5.32	5.32	100,000	100,000	
24	East Bangor, Bangor, Portland.....	Bangor and Portland Traction Co.	July 1, 1907	June 30, 1908	8.55	8.55	130,000	130,000	
25	Easton, Bethlehem, Nazareth, Phillipsburg, Alpha (N. J.).	Easton Transit Co.	Jan. 1, 1907	Dec. 31, 1907	9.49	53.53	300,000	300,000	
25a		Easton and Bethlehem Transit Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	4.16		125,000	125,000	
25b		Pennsylvania Motor Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	2.33		120,000	120,000	
25c		Northampton Central Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	0.00		72,000	72,000	
25d		Easton, Palmer and Bethlehem Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	11.80		200,000	200,000	
25e		Easton and South Bethlehem Transit Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	11.05		150,000	150,000	
25f		Phillipsburg Horse Car R. R. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	7.08		30,000	30,000	
26	Easton, Nazareth, Bangor.....	Northampton Traction Co.	Jan. 1, 1907	Dec. 31, 1907	24.00	24.00	500,000	500,000	
27	Egypt, Levans.....	Whitehall Street Ry. Co.	July 1, 1906	June 30, 1907	5.50	5.50	100,000	100,000	

* Exclusive of 5.61 miles in state owned by an outside company. Total operated in state, 250.02 miles.

* Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$17,943,670.

* Cash investment.

* This company has also a floating debt.

* Amount apportioned to railway department.

* Includes 5.69 miles leased from steam railroad and 32.38 miles lying outside of state, but exclusive of 173.33 miles in state owned by outside companies. Total operated in state, 3,702.07 miles.

GENERAL TABLES.

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STOCK AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$15,291,400	\$14,891,400		\$100,000	\$7,387,800	\$7,537,500		\$175,000	\$25,450,000	\$16,800,000		\$39,027,900	\$65,202	
26,400	26,400										\$6,400	6,275	1
300,000	300,000							160,000	160,000	6	450,000	99,235	2
1,000,000	500,000										500,000	76,123	3
10,000	10,000										\$10,000	5,128	4
\$15,000	\$15,000			\$7,500	\$7,500			\$60,000	\$31,000	5	\$54,100	12,022	5
4,000,000	4,000,000	4	160,000	2,500,000	2,500,000	5	125,000	10,000,000	7,800,000	4,5,6	14,390,000	113,644	6
10,000,000	10,000,000			5,000,000	5,000,000	5	250,000	15,000,000	8,431,000	5,6	28,431,000	245,274	7
\$60,000	\$60,000			\$30,000	\$30,000			\$240,000	\$126,400	5	\$216,400	17,382	8
291,768,320	264,163,905		9,290,261	27,517,200	34,147,800		1,292,087	165,563,500	134,702,466		423,004,263	7109,072	
3,000,000	3,000,000			5,000,000	5,000,000			7,500,000	7,200,000	4,5	\$15,200,000		1
150,000	150,000	5	7,500					150,000	150,000	5	300,000	113,253	1a
300,000	300,000							300,000	300,000	5	600,000		1b
1,500,000	1,500,000	5	75,000					4,000,000	3,100,000	4	\$4,600,000	92,166	2
60,000	60,000										\$60,000	4,013	3
1,500,000	1,075,000							\$4,325,000	\$1,500,000	5,6	2,675,000		4
12,000	400										\$400	72,282	4a
6,000	6,000							7,000	7,000	6	13,000	39,235	5
375,000	375,000	8	11,250					375,000	366,500	5	741,500	41,775	6
250,000	250,000							500,000	500,000	5	\$750,000	66,476	7
1,500,000	1,500,000							1,500,000	1,500,000	5	\$2,000,000	98,235	8
100,000	100,000							100,000	100,000	5	200,000	25,806	9
225,000	225,000							225,000	225,000	5	\$450,000	23,088	10
100,000	100,000										100,000	84,034	11
300,000	300,000							250,000	250,000	6	\$550,000	62,637	12
500,000	500,000							250,000	250,000	5	\$750,000		13
125,000	100,000	6	6,000					125,000	125,000	5	225,000		13a
100,000	50,000										50,000	51,507	13b
100,000	100,000							200,000	200,000	5	300,000		13c
100,000	100,000	6	6,000					100,000	100,000	5	200,000		13d
150,000	150,000	10	15,000								150,000		13e
350,000	350,000							350,000	350,000	5	700,000	80,183	14
30,000	30,000										30,000	30,000	15
600,000	600,000							600,000	590,000	5	1,190,000	146,206	16
30,000	30,000							100,000	22,000	5	32,000	10,400	17
750,000	200,000							750,000	220,000	5	\$450,000	61,398	18
72,000	57,000										57,000	33,529	19
500,000	500,000							250,000	250,000	5	\$750,000	105,379	20
265,000	268,800			365,000	353,800			1,000,000	911,000	4	1,523,600	46,779	21
50,000	50,000							50,000	49,800	6	\$99,800	16,633	22
100,000	100,000							100,000	100,000	5	200,000	37,504	23
130,000	130,000	2	2,600					130,000	130,000	5	260,000	30,409	24
300,000	300,000	14	42,750					450,000	7,900	5	\$307,900		25
125,000	125,000							60,000			\$125,000		25a
120,000	120,000							60,000	60,000	6	180,000		25b
72,000	72,000										\$72,000		25c
100,000	100,000			100,000	100,000			200,000	200,000	5	400,000	29,966	25d
150,000	150,000							500,000	448,000	5	568,000		25e
30,000	30,000										\$30,000		25f
500,000	500,000							500,000	304,000	5	\$294,000	37,260	26
100,000	100,000										100,000	18,182	27

¹ Exclusive of 5.68 miles of track leased from steam railroad, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$38,660,784.

² Includes permanent or other investments.

³ Includes \$75,000 bonds of Peoples Electric Street Ry. Co.

⁴ Exclusive of 0.11 mile used for counter cable car.

⁵ Includes permanent or other investments. This company has also a floating debt.

⁶ Includes electric light plant. This company has also a floating debt.

⁷ Includes electric light plant.

⁸ Entire trackage (7.08 miles) in New Jersey.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL.

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total per value.	
							Authorized.	Outstanding.
PENNSYLVANIA—Cont'd.								
28	Elklick, Meyersdale	Pennsylvania and Maryland Street Ry. Co.	Nov. 1, 1907	Dec. 31, 1907	7.12	7.12	\$300,000	\$94,900
29	Erie, Edinboro, Cambridge Springs	Erie Electric Motor Co. (See New York.)	Jan. 1, 1907	Dec. 31, 1907	26.64	26.24	500,000	500,000
30	Erie, Fairview, Girard; Conneaut (Ohio)	Conneaut and Erie Traction Co. ¹	Jan. 1, 1907	Dec. 31, 1907	*31.28	31.28	850,000	850,000
31	Gettysburg	Gettysburg Transit Co.	July 1, 1906	June 30, 1907	9.76	9.76	100,000	100,000
32	Girardville, Ashland, Shenandoah, Mahanoy City	Schuylkill Ry. Co.	July 1, 1906	June 30, 1907	28.00	28.00	400,000	400,000
33	Greensburg, Youngwood, Hunters, Irwin, Trafford City	Pittsburg, McKeesport and Greensburg Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	29.72	29.72	1,500,000	1,030,000
34	Grovanla, Danville, Bloomsburg	Danville and Bloomsburg Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.92	10.41	250,000	240,000
35	Hanover, McSherrystown	Hanover and McSherrystown Street Ry. Co.	July 1, 1906	June 30, 1907	5.47	5.47	30,000	30,000
36	Harrisburg, Middletown, Linglestown, Hummelstown	Central Pennsylvania Traction Co.	July 1, 1906	June 30, 1907		70.32	2,100,000	2,100,000
36a		Harrisburg Traction Co. (lessor)	July 1, 1906	June 30, 1907	22.32		2,500,000	2,100,000
36b		Harrisburg City Passenger Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	15.61		125,000	125,000
36c		Middletown, Highspire and Steelton Street Ry. Co. (lessor)	July 1, 1906	June 30, 1907	9.72		100,000	100,000
36d		Linglestown and Blue Mountain Street Ry. Co. (lessor)	July 1, 1906	June 30, 1907	5.63		125,000	125,000
36e		Harrisburg and Hummelstown Street Ry. Co. (lessor)	July 1, 1906	June 30, 1907	6.84		42,000	42,000
37	Hazleton, Jeddco, Freeland, Modoc	Lehigh Traction Co.	Jan. 1, 1907	Dec. 31, 1907	19.55	19.55	1,000,000	1,000,000
38	Hazleton, Wilkes-Barre	Wilkes-Barre and Hazleton Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	26.06	31.40	1,500,000	1,500,000
38a		Wilkes-Barre Terminal R. R. Co. (lessor)	Oct. 1, 1907	Dec. 31, 1907	3.80		35,000	35,000
39	Hershey, Hummelstown, Palmyra, Campbellstown	Hummelstown and Campbellstown Street Ry. Co.	Nov. 5, 1906	Nov. 4, 1907	8.30	8.30	75,000	50,000
40	Homestead	Homestead and Mifflin Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.25	3.25	150,000	150,000
41	Huntingdon	Juniata Valley Electric Street Ry. Co.	June 4, 1907	Dec. 31, 1907	1.68	1.68	20,000	6,000
42	Indiana, Homer City, Clymer, Crookston	Indiana County Street Ry. Co. ²	Aug. 1, 1907	Dec. 31, 1907	25.00	25.00	1,000,000	
43	Jersey Shore, Pile	Jersey Shore Electric Street Ry.	July 1, 1906	June 30, 1907	5.17	5.17	150,000	135,600
44	Jersey Shore, Antes Fort, Nippon	Jersey Shore and Antes Fort R. R. Co.	July 1, 1906	June 30, 1907	4.75	4.75	40,000	40,000
45	Johnstown	Cambria Inclined Plane Co.	Jan. 1, 1907	Dec. 31, 1907	.34	.34	50,000	50,000
46	Johnstown, Franklin, Windber	Johnstown Passenger Ry. Co.	July 1, 1906	June 30, 1907	21.30	21.30	2,000,000	2,000,000
47	Kennett Square, Avondale, West Grove, Hooksett (Del.)	West Chester, Kennett and Wilmington Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	*20.60	20.60	1,000,000	600,000
48	Kittanning, Rosston	Kittanning and Leechburg Railways Co.	Jan. 1, 1907	Dec. 31, 1907	9.00	9.00	500,000	500,000
49	Lancaster, Marietta, Manheim, Ephrata, Adamstown, Christiana, Quarryville, Torre Hill	Conestoga Traction Co.	Jan. 1, 1907	Dec. 31, 1907	37.49	143.78	4,000,000	4,000,000
49a		Lancaster and Columbia Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	9.16		50,000	37,500
49b		Lancaster, Mechanicsburg and New Holland Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	20.62		200,000	300,000
49c		Lancaster, Petersburg and Manheim Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	8.06		175,000	175,000
49d		Lancaster, Willow Street, Lampeter and Strasburg Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	11.50		225,000	225,000
49e		Lancaster and Eastern Street Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	17.74		430,000	430,000
49f		Lancaster and Quarryville Street Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	8.45		225,000	225,000
49g		Lancaster and Rocky Springs Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	4.53		200,000	200,000
49h		Ephrata and Adamstown Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	8.07		225,000	225,000
49i		New Holland, Blue Ball and Torre Hill Street Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	5.01		120,000	120,000
49j		Rohrerstown, Landisville and Mount Joy Street Ry. Co. (lessor)	Jan. 1, 1907	Dec. 31, 1907	13.16		400,000	400,000
50	Latrobe, Bagnaley	Latrobe Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	5.00	5.00	100,000	100,000
51	Lebanon, Palmyra, Myerstown	Lebanon Valley Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	22.08	22.08	500,000	500,000
52	Leechburg, North Vandergrift, Apollo	Pittsburg and Allegheny Valley Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	9.00	9.00	1,500,000	1,500,000
53	Lemoyne, Marysville, Dauphin, Harrisburg, Shermanstown, Mechanicsburg, Carlisle	Valley Traction Co. ¹¹	Jan. 1, 1907	Dec. 31, 1907	33.18	41.23	1,000,000	850,050
53a		Harrisburg and Mechanicsburg Electric Ry. Co. (lessor)	July 1, 1906	June 30, 1907	8.05		225,000	144,500
54	Lewistown, Reedsville	Lewistown and Reedsville Electric Ry. Co.	Nov. 1, 1906	Oct. 31, 1907	10.24	10.24	150,000	150,000
55	Lock Haven, Mill Hall	Susquehanna Traction Co.	Jan. 1, 1907	Dec. 31, 1907	6.00	6.00	200,000	200,000
56	Lykens, Williamstown, Tower City	Lykens and Williams Valley Street Ry. Co.	July 1, 1906	June 30, 1907	10.74	10.74	200,000	188,500
57	McDonald, Oakdale	Oakdale and McDonald Street Ry. Co.	Sept. 15, 1907	Dec. 31, 1907	4.65	4.65	150,000	150,000
58	McKeesport	Highland Grove Traction Co.	July 1, 1906	June 30, 1907	2.02	4.02	50,000	28,000
59	McKeesport, Circleville, Irwin	Pittsburg and Westmoreland Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.40	8.40	350,000	350,000
60	Martinsville, Rawlinsville	Lancaster and Southern Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	6.20	6.20	112,000	112,000
61	Mauch Chunk, Lehighton	Carbon Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	12.50	12.50	354,000	354,000

¹ Operated under receivership, September 5 to December 31, 1907.² Includes 1.94 miles in Ohio.³ Includes permanent or other investments.⁴ Operations largely confined to summer season.⁵ Includes electric-light plant. This company has also a floating debt.⁶ This company has also a floating debt.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$200,000	\$94,900										\$94,900	\$13,329	28
500,000	500,000							\$500,000	\$500,000	5	1,000,000	37,538	29
550,000	850,000							2,100,000	1,239,500	5	2,079,500	66,480	30
100,000	100,000							110,000	110,000	5	210,000	21,516	31
400,000	400,000							1,450,000	983,000	5	1,383,000	88,303	32
1,500,000	1,030,000							1,400,000	1,378,000	5	2,408,000	81,028	33
250,000	240,000							250,000	225,000	5	465,000	52,130	34
30,000	30,000	9	\$2,700								490,000	5,484	35
2,100,000	2,100,000										2,100,000		36
2,500,000	2,100,000	6	126,000					75,000	75,000	6	2,175,000		36a
125,000	125,000	12	15,000								125,000		36b
100,000	100,000	10	10,000								100,000	70,705	36c
125,000	125,000							125,000	105,000	5	230,000		36d
42,000	42,000							200,000	200,000	4½	242,000		36e
1,000,000	1,000,000							585,000	555,000	5	1,555,000	79,540	37
1,500,000	1,500,000							1,500,000	1,500,000	5	3,000,000		38
35,000	35,000							600,000	600,000	5	635,000	121,726	38a
75,000	50,000							150,000	150,000	5	200,000	24,066	39
135,000	135,000			\$15,000	\$15,000			150,000			150,000	46,154	40
20,000	6,000							30,000	30,000	5	36,000	21,429	41
1,000,000								1,000,000	485,000	5	485,000	19,400	42
150,000	135,600	6	8,136								135,600	26,228	43
40,000	40,000	1	400								40,000	8,421	44
50,000	50,000	22	11,000								50,000	147,059	45
2,000,000	2,000,000	3	60,000					2,000,000	1,930,000	4.6	3,930,000	125,559	46
925,000	525,000			75,000	75,000			1,000,000	420,000	5	1,020,000	49,515	47
500,000	500,000							750,000	27,500	6	827,500	58,611	48
3,200,000	3,200,000			800,000	800,000	11	\$88,000	2,285,000	1,622,500	4.5	2,562,500		49
50,000	37,500	20	7,500					225,000	225,000	5	262,500		49a
200,000	200,000	8	24,000								200,000		49b
175,000	175,000	6	10,500								175,000		49c
225,000	225,000	6	13,500								225,000		49d
430,000	430,000	6	25,800								430,000	57,205	49e
225,000	225,000	6	13,500								225,000		49f
200,000	200,000	6	12,000								200,000		49g
225,000	225,000	6	13,500								225,000		49h
120,000	120,000	5	6,000								120,000		49i
400,000	400,000	6	24,000								400,000		49j
100,000	100,000							100,000	100,000	6	200,000	40,000	50
500,000	500,000	1	5,000					500,000	500,000	5	1,000,000	45,290	51
1,500,000	1,500,000							150,000	146,000	5	1,646,000	183,111	52
500,000	500,000			500,000	350,050			700,000	551,400	5	1,401,450		53
225,000	144,500							224,000	144,500	6	250,000	41,000	53a
150,000	150,000	5	7,500					275,000	275,000	5	425,000	41,504	54
200,000	200,000							100,000	100,000	5	200,000	50,000	55
200,000	188,500							180,000	174,500	5	354,500	53,780	56
150,000	150,000							150,000	150,000	5	300,000	64,516	57
50,000	23,000										23,000	11,368	58
250,000	250,000							350,000	350,000	5	700,000	83,333	59
112,600	112,600										112,600	18,161	60
354,000	354,000							100,000	100,000	6	454,000	36,320	61

¹ Includes permanent or other investments. This company has also a floating debt.² Road was largely under construction during census year and only partially operated during period reported.³ Includes 9 miles in Delaware.⁴ Includes electric-light plant.⁵ Includes White Hill and Mechanicsburg Passenger Ry. Co., Carlisle and Mechanicsburg Electric Ry. Co., and West Fairview and Marysville Electric Street Ry. Co.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
PENNSYLVANIA—Cont'd.								
62	Meadville Valonia.....	Meadville Traction Co.....	Nov. 1, 1906	Oct. 31, 1907	11.00	11.00	\$350,000	\$350,000
63	Meadville, Hagerstown, Cambridge Springs.....	Meadville and Cambridge Springs Street Ry. Co.	July 1, 1906	June 30, 1907	16.20	17.10	300,000	300,000
64	Millersville, Piquette.....	Lancaster and York Furnace Street Ry. Co.	July 1, 1906	June 30, 1907	12.37	12.37	280,000	170,400
65	Milton, Watsonstown, East Lewisburg.....	Lewisburg, Milton and Watsonstown Passenger Ry. Co.	July 1, 1906	June 30, 1907	9.28	9.28	150,000	150,000
66	Montoursville, Williamsport.....	Montoursville Passenger Ry. Co.....	July 1, 1906	June 30, 1907	5.50	5.50	75,000	75,000
67	Nanticoke, Warram, Glenlyon.....	Peoples Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	8.75	8.75	100,000	100,000
68	Newtown, Bristol, Doylestown, Newtown.....	Bucks County Electric Ry. Co. Newtown and Yardley Street Ry. Co. (See New Jersey.)	Jan. 1, 1907	Dec. 31, 1907	27.53	27.53	400,000	400,000
69	Norristown, Bridgeport, Philadelphia, Pottstown.....	Schuylkill Valley Traction Co.....	Jan. 1, 1907	Dec. 31, 1907		57.08	1,000,000	500,000
69a		Montgomery County Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	1.44		150,000	150,000
69b		Norristown Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	4.00		75,000	75,000
69c		Citizens Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	11.06		79,520	79,520
69d		Conshohocken Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	5.08		250,000	145,900
69e		Collegeville Electric Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	.94		7,000	2,500
69f		Roxborough, Chestnut Hill and Norristown Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	17.76		450,000	248,400
69g		Wissahickon Electric Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	3.44		250,000	239,050
69h		Trappe and Limerick Electric Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	12.36		220,000	230,000
70	Norristown, West Point, Lansdale.....	Montgomery Traction Co.....	July 1, 1907	June 30, 1908	13.96	14.46	250,000	250,000
71	Norristown.....	Montgomery County Rapid Transit Co.....	July 1, 1907	Dec. 31, 1907	5.09	5.09	300,000	300,000
72	Old City, Houserville, Franklin.....	Citizens Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	37.04	37.04	2,000,000	2,000,000
73	Patton, Carrolltown, Harnestown.....	Northern Cambria Street Ry. Co.....	July 1, 1906	June 30, 1907	11.96	11.96	600,000	400,000
74	Pen Argyl, Bangor, Nazareth.....	State Belt Electric Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	18.00	18.00	300,000	300,000
75	Philadelphia and vicinity.....	Philadelphia Rapid Transit Co.....	July 1, 1906	June 30, 1907		619.85	30,000,000	30,000,000
75a		Union Traction Co. (lessor).	July 1, 1906	June 30, 1907	(?)		30,000,000	30,000,000
75b		Philadelphia Traction Co. (lessor).	July 1, 1906	June 30, 1907	(?)		30,000,000	20,000,000
75c		West Philadelphia Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	61.82		750,000	750,000
75d		Philadelphia City Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	8.38		1,000,000	1,000,000
75e		Philadelphia and Darby Ry. Co. (lessor).	July 1, 1906	June 30, 1907	17.54		200,000	200,000
75f		Union Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	76.65		1,500,000	1,500,000
75g		Continental Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	12.64		1,000,000	1,000,000
75h		Seventeenth and Nineteenth Streets Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	13.22		500,000	500,000
75i		Kessler Street Connecting Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.16		5,000	5,000
75j		Philadelphia and Grays Ferry Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	11.15		1,000,000	619,400
75k		Thirteenth and Fifteenth Streets Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	20.50		1,000,000	1,000,000
75l		Ridge Avenue Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	14.97		750,000	750,000
75m		Catharine and Bainbridge Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	5.41		400,000	400,000
75n		Huntingdon Street Connecting Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.17		6,000	6,000
75o		Twenty-Second Street and Allegheny Avenue Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	54.84		1,302,000	1,122,800
75p		Walnut Street Connecting Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	1.40		50,000	50,000
75q		Ridge Avenue Connecting Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.16		6,000	6,000
75r		Empire Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	12.25		600,000	600,000
75s		Electric Traction Company of Philadelphia (lessor).	July 1, 1906	June 30, 1907	(?)		8,750,000	8,750,000
75t		Frankford and Southwark Philadelphia City Passenger R. R. Co. (lessor).	July 1, 1906	June 30, 1907	74.87		1,875,000	1,875,000
75u		Citizens Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	11.50		500,000	500,000
75v		Second and Third Streets Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	35.04		1,080,200	1,080,200
75w		Citizens East End Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.79		15,000	15,000
75x		Citizens, Clearfield and Cambria Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	.33		6,000	6,000

* This company has also a floating debt.

* Includes electric-light plant.

* Includes permanent or other investments.

* Includes permanent or other investments. This company has also a floating debt.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$350,000	\$350,000							\$300,000	\$300,000	5	\$650,000	\$50,091	62
300,000	300,000							400,000	390,000	5, 6	600,000	42,593	63
200,000	170,400										1170,400	13,775	64
150,000	150,000							150,000	150,000	5	200,000	32,328	65
75,000	75,000							75,000	75,000	5	150,000	27,273	66
100,000	100,000							100,000	100,000	6	200,000	22,857	67
400,000	400,000							500,000	500,000	5	1,900,000	32,002	68
1,000,000	500,000							500,000	345,000	5	1,945,000		69
150,000	150,000							150,000	15,000	6	165,000		69a
60,700	60,700	5 1/2	\$3,548	\$5,300	\$5,300	5 1/2	\$442	75,000	75,000	6	150,000		69b
79,520	79,520	2 1/2	1,185					80,000	80,000	5	159,520		69c
250,000	145,900							250,000	100,000	5	245,900		69d
7,000	2,500										2,500		69e
450,000	248,400	9	22,356					450,000	371,000	5	1,619,400		69f
250,000	230,050	2 1/2	5,737								230,050		69g
250,000	250,000	5	12,500					250,000	250,000	4 1/2	500,000		69h
250,000	250,000							250,000	250,000	5	500,000	35,817	70
300,000	300,000							500,000	205,000	5	1,505,000	99,214	71
1,000,000	1,000,000			1,000,000	1,000,000			750,000	750,000	5	2,750,000	74,244	72
600,000	400,000							600,000	400,000	5	1,600,000	66,890	73
300,000	300,000							300,000	280,000	5	720,000		74
30,000,000	30,000,000										30,000,000		75
30,000,000	30,000,000	5	1,000,000					1,000,000	1,400,000	4	2,400,000		75a
30,000,000	30,000,000	5	1,000,000					1,000,000	995,000	3 1/2	2,000,000		75b
750,000	750,000	20	150,000								1,745,000		75c
1,000,000	1,000,000	15	150,000					300,000	300,000	5	1,300,000		75d
200,000	200,000	4	8,000					100,000	100,000	4	300,000		75e
1,500,000	1,500,000	19	285,000					750,000	750,000	5	2,250,000		75f
1,000,000	1,000,000	6	60,000					350,000	280,000	6	1,280,000		75g
500,000	500,000	3	15,000					100,000	100,000	5	1,600,000		75h
5,000	5,000	6	300								15,000		75i
1,000,000	619,400	8	49,552								619,400		75j
1,000,000	1,000,000	24	240,000					600,000	500,000	3 1/2	1,500,000		75k
750,000	750,000	24	180,000								750,000		75l
400,000	400,000	6	24,000					150,000	150,000	5	1,550,000		75m
6,000	6,000	6	360								16,000		75n
1,302,000	1,122,800	6	67,368								1,122,800		75o
50,000	50,000	6	3,000								150,000		75p
6,000	6,000	6	360								16,000		75q
600,000	600,000	6	36,000					200,000	200,000	3 1/2	1,800,000		75r
8,750,000	8,750,000	6 1/2	581,438					300,000	282,100	3 1/4	10,032,100		75s
1,875,000	1,875,000	36	675,000								1,875,000		75t
500,000	500,000	28	140,000								600,000	221,907	75u
1,000,200	1,000,200	24	254,448								1,060,200		75v
15,000	15,000	6	900								15,000		75w
6,000	6,000	6	360								16,000		75x

* Road was under construction.

* Includes electric-light plant and permanent or other investments.

* Track leased and subleased.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL.

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
PENNSYLVANIA—Cont'd.								
Philadelphia and vicinity—Con.								
75y		Philadelphia Rapid Transit Co.—Cont'd.						
75a		Union Traction Co. (lessor)—Cont'd.						
75aa		Peoples Traction Co. (lessor).....	July 1, 1906	June 30, 1907	(1)		\$6,000,000	\$6,000,000
		Peoples Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	3.38		2,250,000	2,075,000
		Green and Coates Street Philadelphia Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	6.07		600,000	500,000
75bb		Germantown Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	43.87		1,600,000	1,500,000
75cc		Northern Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	1.84		30,000	15,000
75dd		Centennial Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	.79		15,000	15,000
75ee		Philadelphia, Cheltenham, and Jenkintown Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	24.03		60,000	60,000
75f		Girard Avenue Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	2.36		9,000	8,000
75gg		Hillcrest Avenue Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	2.04		10,000	10,000
75hh		Hestonville, Mantua and Fairmount Passenger R. R. Co. (lessor).....	July 1, 1906	June 30, 1907	15.70		2,800,000	2,600,000
75ii		Fairmount Park and Haddington Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	6.69		300,000	300,000
75jj		Lehigh Avenue Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	5.20		1,000,000	1,000,000
75kk		Darby, Media and Chester Street Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	24.56		850,000	850,000
75ll		Darby and Yeadon Street Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	2.50		15,000	500
75mm		Doylestown and Willow Grove Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	13.60		500,000	500,000
75nn		Market Street Elevated Passenger Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	14.70		5,600,000	280,000
75oo		Philadelphia and Willow Grove Street Ry. Co. (lessor).....	July 1, 1906	June 30, 1907	18.79		124,000	100,800
76	Philadelphia	Southwestern Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	15.98	15.98	400,000	400,000
77	Philadelphia, Bristol, Morrisville	Philadelphia, Bristol and Trenton Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	17.63	17.63	1,000,000	1,000,000
78	Philadelphia, West Chester, Albion Heights, Collingsdale, Ardmore.	Philadelphia and West Chester Traction Co.	Dec. 1, 1906	Nov. 30, 1907	26.60	39.28	1,000,000	821,000
78a		Ardmore and Llanerch Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	4.68		300,000	293,800
78b		Philadelphia and Garretttsford Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	8.00		72,000	8,000
79	Philadelphia	Holmesburg, Tacony and Frankford Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	16.28	17.58	800,000	750,000
80	do.	Fairmount Park Transportation Co.	Jan. 1, 1907	Dec. 31, 1907	8.80	8.80	2,000,000	2,000,000
81	Philadelphia, Swarthmore, Media, Glen Riddle.	Delaware County and Philadelphia Electric Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	9.74	14.70	500,000	300,000
81a		Media, Glen Riddle and Rockdale Electric Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	4.96		82,000	82,000
82	Philadelphia (Upper Darby), Beechwood Park, Ardmore, Bryn Mawr, Wayne, Stratford, Philadelphia, Morrisdale, Wilmur.	Philadelphia and Western Ry. Co.	May 22, 1907	Dec. 31, 1907	25.01	25.01	4,000,000	4,000,000
83		Centre and Clearfield Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	12.60	13.00	500,000	312,300
84	Phoenixville, Spring City	Montgomery and Chester Electric Ry. Co.	Oct. 1, 1906	Sept. 30, 1907	6.77	6.77	100,000	100,000
85	Pittsburg and vicinity	Pittsburg Railways Co. (The Philadelphia Co.)	Apr. 1, 1907	Mar. 31, 1908	62.99	534.43	5,000,000	5,000,000
85a		United Traction Co. of Pittsburg (lessor).....	Apr. 1, 1907	Mar. 31, 1908	96.56		20,000,000	20,000,000
85b		Pittsburg and Birmingham Traction Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	27.43		3,000,000	3,000,000
85c		Mt. Oliver Incline Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	.60		100,000	100,000
85d		Pittsburg Incline Plane Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	1.00		150,000	150,000
85e		Pittsburg and Charlevoix Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	40.28		2,500,000	2,500,000
85f		East McKeesport Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	8.18		250,000	250,000
85g		Allegheny, Bellevue and Perrysville Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	11.12		250,000	250,000
85h		Ben Avon and Emsworth Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	5.42		100,000	100,000
85i		Federal Street and Pleasant Valley Passenger Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	40.48		1,400,000	1,400,000
85j		Consolidated Traction Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	74.99		30,441,000	27,441,000
85k		Allegheny Traction Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	13.53		500,000	500,000
85l		Citizens Traction Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	39.22		3,000,000	3,000,000
85m		Monongahela Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	64.21		7,000,000	7,000,000
85n		Suburban Rapid Transit Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	11.64		1,400,000	1,400,000
85o		Morrisdale Electric Street Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	3.31		24,000	24,000

1 Track leased and subleased.

2 Includes permanent or other investments.

3 This company has also a floating debt.

4 Construction work was in progress during census year. This company has also a floating debt.

5 Includes permanent or other investments. This company has also a floating debt.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$6,000,000	\$6,000,000	10½	\$608,000								\$46,000,000		75y
1,500,000	1,500,000	11½	168,000	\$750,000	\$575,000	11½	\$64,400	\$1,844,000	\$750,000	4, 5	\$2,825,000		75a
500,000	500,000	12	60,000								500,000		75aa
1,500,000	1,500,000	10½	157,500								1,500,000		75bb
30,000	15,000	6	900								\$15,000		75oc
15,000	15,000	6	900								15,000		75dd
60,000	60,000	6	3,600								\$60,000		75ee
9,000	5,000	6	300								\$5,000		75ef
10,000	10,000	6	600								\$10,000		75eg
1,066,100	1,066,100	4	78,644	533,900	533,900	6	32,034	1,250,000	1,250,000	3½, 6	\$2,760,000		75hh
300,000	300,000	6	18,000								300,000		75ii
1,000,000	1,000,000										1,000,000		75jj
850,000	850,000	1	8,500					1,500,000	865,000	4½	\$1,715,000		75kk
15,000	500							200,000	200,000	4½	\$200,500		75ll
800,000	600,000							500,000	500,000	4	1,000,000		75mm
5,600,000	280,000							10,000,000	10,000,000	4	\$10,280,000		75nn
124,000	100,800	6	6,048					1,000,000	1,000,000	4½	\$1,100,800		75oo
400,000	400,000							400,000	400,000	4, 5	800,000	\$50,063	76
1,000,000	1,000,000							1,000,000	650,000	5	\$1,050,000	92,590	77
1,000,000	821,000	2½	30,525					1,400,000	934,000	4, 5	1,755,000		78
300,000	293,800	5	14,478								293,800	70,330	78a
72,000	5,000							3,000,000	700,000	5	\$714,000		78b
800,000	750,000							400,000	400,000	5	\$1,150,000	70,208	79
2,000,000	2,000,000							750,000	688,000	5	2,688,000	305,455	80
500,000	300,000	7	21,000					64,000	64,000	6	\$264,000		81
82,000	82,000										82,000	30,340	81a
3,400,000	3,400,000			600,000	600,000						\$4,000,000	150,930	82
500,000	312,300							500,000	422,500	5	804,800	59,176	83
100,000	100,000							100,000	100,000	5	200,000	29,542	84
2,500,000	2,500,000			2,500,000	2,500,000			5,754,000	5,549,000	5	\$10,549,000		85
17,000,000	17,000,000	1	170,000	3,000,000	3,000,000	5	150,000	10,000,000	8,750,000	5, 6	\$28,750,000		85a
3,000,000	3,000,000	5	150,000					\$2,730,000	\$2,710,000	5, 6	5,710,000		85b
100,000	100,000	6	6,000					44,500	44,500	6	144,500		85c
150,000	150,000	10	15,000					250,000	250,000	6	400,000		85d
2,500,000	2,500,000	½	1,000					2,500,000	2,500,000	5	5,000,000		85e
250,000	250,000							250,000	250,000	5	500,000		85f
250,000	250,000	10	25,000					500,000	500,000	5	750,000		85g
100,000	100,000	5	5,000					300,000	300,000	5	400,000		85h
1,400,000	1,400,000	5	70,000					1,250,000	1,250,000	5	2,650,000		85i
\$15,441,600	\$15,441,600	2	\$203,828	15,000,000	12,000,000	6	720,000	\$4,000,000	\$3,938,000	5, 6	\$31,379,000		85j
500,000	500,000	5	25,000					750,000	750,000	5	1,250,000		85k
3,000,000	3,000,000	6	180,000					1,500,000	1,500,000	5	4,500,000		85l
7,000,000	7,000,000	2½	250,000					4,000,000	4,156,000	5	11,156,000		85m
1,400,000	1,400,000	4	56,000					200,000	200,000	6	1,600,000		85n
24,000	24,000	5	1,200					200,000	200,000	5	224,000		85o

* Includes bonds of consolidated companies.

† Includes \$441,600 stock of consolidated companies.

‡ Includes \$15,548 dividends on outstanding stock of consolidated companies. Dividend of 2 per cent not paid on entire \$15,000,000 outstanding.

• Funded debt of consolidated companies.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
PENNSYLVANIA—Cont'd.								
Pittsburg and vicinity—Cont'd.								
85p		Pittsburg Railways Co.—Continued.	Jan. 1, 1907	Dec. 31, 1907	9.01		\$1,000,000	\$481,900
85q		Pittsburg and Castle Shannon R. R. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.32		250,000	250,000
85r		Seventeenth Street Incline Plane Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	12.08		1,500,000	1,500,000
85s		Mount Washington Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	3.02		15,000	15,000
85t		Allenport and Roscoe Electric Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	2.38		9,000	9,000
85u		Bates Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.21		12,000	12,000
85v		Bereton Avenue Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.53		12,000	4,000
85w		Cedar Avenue Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.12		12,000	12,000
85x		Pittsburg Southern Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.02		30,000	10,000
85y		Rosslyn Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	2.64		12,000	4,000
85z		Superior Avenue and Shady Avenue Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	.44		1,200	1,200
85aa		Tustin Street Ry. Co. (lessor).	Apr. 1, 1907	Mar. 31, 1908	1.50		25,000	25,000
86	Pittsburg	West Shore Electric Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	.40	.80	150,000	150,000
87	do.	St. Clair Incline Plane Co.	Jan. 1, 1907	Dec. 31, 1907	.30	.30	100,000	100,000
88	do.	Duquesne Incline Plane Co.	Jan. 1, 1907	Dec. 31, 1907	.48	.48	250,000	250,000
89	Pittsburg (Duquesne), McKeesport, Greensburg, Connellsville, Mazon town, Fairchance.	Monongahela Incline Plane Co.	Jan. 1, 1907	Dec. 31, 1907		113.09	6,000,000	6,000,000
89a		West Penn Ry. Co.	Jan. 1, 1907	Dec. 31, 1907				
89b		Pittsburg, McKeesport and Connellsville Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	24.46		3,000,000	3,000,000
89c		Greensburg and Southern Electric Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	15.04		500,000	150,000
89d		West Penn Interurban Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	73.59		1,000,000	1,000,000
90	Pottstown	Pottstown and Reading Street Ry. Co.	July 1, 1906	June 30, 1907		6.73	200,000	168,000
90a	do.	Pottstown Passenger Ry. Co. (lessor).	July 1, 1906	June 30, 1907	6.73		100,000	100,000
91	do.	Pottstown and Northern Street Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	3.75	3.75	40,000	40,000
92	Pottsville, Minersville, Orwigsburg, Glen Carbon, Middleport.	Pottsville Union Traction Co.	Jan. 1, 1907	Dec. 31, 1907	136.50	40.90	1,250,000	1,250,000
92a		Peoples Railway Co. of Pottsville (lessor).	July 1, 1906	June 30, 1907	74.40		250,000	250,000
93	Punxsutawney, Reynolds ville, Sykesville.	Jefferson Traction Co.	Jan. 1, 1907	Dec. 31, 1907	31.00	31.00	500,000	308,000
94	Reading, Womelsdorf, Temple, Birdsboro, Mohnton, Adamstown.	United Traction Co.	Jan. 1, 1907	Dec. 31, 1907		80.21	400,000	400,000
94a		Reading Traction Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	(^b)		1,000,000	1,000,000
94b		East Reading Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	7.95		100,000	100,000
94c		Reading City Passenger Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	24.98		400,000	350,000
94d		Reading and Temple Electric Ry. Co. (lessor).	Nov. 15, 1906	Nov. 14, 1907	7.22		75,000	73,700
94e		Reading and Womelsdorf Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	14.80		500,000	500,000
94f		Reading and Southwestern Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	8.44		130,000	130,000
94g		Birdsboro Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	7.60		230,000	250,000
94h		Adamstown and Mohntonville Electric Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	7.90		75,000	75,000
94i		Front and Fifth Street Ry. Co. (lessor).	Jan. 1, 1907	Dec. 31, 1907	1.02		45,000	45,000
95	Reading, Neversink Mountain.	Neversink Mountain Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	8.70	8.70	100,000	100,000
96	Reading, Mt. Penn.	Mt. Penn Gravity R. R. Co.	July 1, 1906	June 30, 1907	8.00	8.00	100,000	100,000
97	Reading, Fleetwood, Kutztown, Allentown.	Allentown and Reading Traction Co.	July 1, 1906	June 30, 1907	27.50	47.10	250,000	220,000
97a		Kutztown and Fleetwood Street Ry. Co. (lessor).	July 1, 1906	June 30, 1907	14.60		200,000	200,000
98	Reading, Oley, Boyertown.	Oley Valley Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	19.25	19.25	250,000	250,000
99	Sayre, Athens, Waverly (N. Y.).	Waverly, Sayre and Athens Traction Co., including Sayre Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	12.14	12.14	200,000	200,000
100	Scranton, Pittston, Olyphant, Carbondale, Forest City.	Scranton Railway Co. ¹¹	July 1, 1906	June 30, 1907	47.63	91.55	6,000,000	3,500,000
100a		Carbondale Ry. Co. (lessor).	July 1, 1906	June 30, 1907	15.25		450,000	450,000
100b		Scranton and Carbondale Traction Co. (lessor).	July 1, 1906	June 30, 1907	5.55		500,000	500,000
100c		Scranton and Pittston Traction Co. (lessor).	July 1, 1906	June 30, 1907	13.12		1,050,000	976,125
101	Scranton, Dunmore, Pittston, Wilkes-Barre.	Lackawanna and Wyoming Valley R. R. Co.	July 1, 1906	June 30, 1907	16.27	40.69	600,000	600,000
101a		Scranton and Northeastern R. R. Co. (lessor).	July 1, 1906	June 30, 1907	28.17		750,000	750,000
101b		Lackawanna Tunnel Co. (lessor).	July 1, 1906	June 30, 1907	(¹²)		200,000	200,000
101c		Central Valley R. R. Co. (lessor).	July 1, 1906	June 30, 1907	14.76		250,000	250,000
101d		Wilkes-Barre R. R. Co. (lessor).	July 1, 1906	June 30, 1907	3.49		250,000	250,000
102	Shamokin, Mt. Carmel, Centralia, Ashland.	Shamokin and Mount Carmel Transit Co.	Dec. 1, 1906	Nov. 30, 1907	17.25	18.25	1,000,000	810,000

¹ Includes permanent or other investments.² This company has also a floating debt.³ Includes permanent or other investments. This company has also a floating debt.⁴ Semiannual dividends of 2½ and 3 per cent.⁵ Includes 3.40 miles leased from steam railroad.⁶ Includes \$304,000 outstanding bonds of consolidated companies.⁷ Also leased to and operated by steam railroad.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of interest, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$1,000,000	\$481,400							\$200,000	\$200,000	6	\$481,400	85p	
250,000	250,000							125,000	125,000	5	375,000	85q	
1,500,000	1,500,000							1,500,000	1,500,000	5	3,000,000	85r	
15,000	15,000										\$15,000	85s	
9,000	9,000										\$9,000	85t	
12,000	12,000										12,000	85u	
12,000	4,000										14,000	85v	
12,000	12,000										\$12,000	85w	
20,000	10,000										\$10,000	85x	
12,000	4,000										4,000	85y	
1,200	1,200										1,200	85z	
25,000	25,000										\$25,000	85aa	
150,000	150,000	6	96,000					75,000	58,000	6	208,000	\$200,000 86	
100,000	100,000										100,000	333,333 87	
250,000	250,000	8	20,000								250,000	820,833 88	
3,250,000	3,250,000			\$2,750,000	\$2,750,000	5	\$137,500	6,000,000	4,991,000	5	\$10,991,000	89	
3,000,000	3,000,000							3,785,000	2,999,500	5.6	\$5,999,500	161,065 89a	
500,000	150,000										\$150,000	89b	
1,000,000	1,000,000							175,000	175,000	5	\$1,175,000	89c	
500,000	168,000										168,000	90	
100,000	100,000	5 ^a	\$5,333					100,000	100,000	5	200,000	54,681 90a	
40,000	40,000										40,000	10,067 91	
1,250,000	1,250,000							1,250,000	\$1,129,000	5	\$2,379,000	71,067 92	
250,000	250,000	3	7,500					120,000	36,000	5	1286,000	92a	
500,000	368,000	6	22,080					500,000	368,000	6	736,000	23,742 93	
400,000	400,000	5	20,000					150,000	149,900	5	\$549,900	94	
1,000,000	1,000,000	3	30,000					500,000	445,000	6	\$1,445,000	94a	
100,000	100,000	7 ^b	7,600					25,000	25,000	5	125,000	94b	
400,000	350,000	12	42,000					112,000	112,000	5	462,000	94c	
75,000	73,700	7	5,159					75,000	73,700	5	147,400	94d	
500,000	500,000							400,000	400,000	5	900,000	57,403 94e	
130,000	130,000	12	15,600					100,000	100,000	5	230,000	94f	
250,000	250,000							250,000	250,000	5	500,000	94g	
75,000	75,000	4	3,000					75,000	75,000	5	150,000	94h	
45,000	45,000							50,000	50,000	5	95,000	94i	
100,000	100,000							100,000	100,000	4	200,000	22,969 95	
100,000	100,000	5	5,000					100,000	100,000	4	200,000	25,000 96	
250,000	250,000							825,000	625,500	5	\$875,500	30,297 97	
200,000	200,000							200,000	200,000	5	400,000	97a	
250,000	250,000	4	10,000					250,000	250,000	4 ^c	\$500,000	25,974 98	
200,000	200,000							2,150,000	500,000	5.6	1,700,000	57,661 99	
4,500,000	2,000,000	6	120,000	1,500,000	1,500,000	5	75,000	3,500,000	3,000,000	5.6	\$6,500,000	100	
450,000	450,000							450,000	450,000	6	900,000	100a	
500,000	500,000	1	5,000					150,000	150,000	6	650,000	115,041 100b	
1,030,000	976,125							625,000	355,800	6	1,331,125	100c	
600,000	600,000							1,000,000			600,000	101	
750,000	750,000							2,850,000	2,050,000	4 ^d	2,800,000	101a	
200,000	200,000							850,000	850,000	4 ^e	1,080,000	101b	
250,000	250,000							1,750,000	1,250,000	4 ^f	1,500,000	101c	
250,000	250,000							750,000	750,000	4 ^g	1,000,000	101d	
700,000	548,150			300,000	261,850	6	15,711	600,000	408,500	5	1,218,500	70,638 102	

^a Track leased and subleased.^b Operations largely confined to summer season.^c Includes 4.26 miles in New York.^d Includes Lackawanna Valley Traction Co. and Pittston and Scranton Street Ry. Co.^e Includes 1.78 miles leased from steam railroad.^f This company owns no track. Tracks in tunnel are owned by Scranton and Northeastern R. R. Co.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
PENNSYLVANIA—Cont'd.								
103	Shamokin, Trevorton.....	Shamokin and Edgewood Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	9.37	11.83	\$250,000	\$250,000
103a	.....	Shamokin Extension Electric Ry. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	2.45	.....	50,000	40,000
	Sharon.....	Mahoning and Shenango Railway and Light Co. (See Ohio.).....						
	Shinglehouse.....	Shinglehouse R. R. Co. (See New York.).....						
104	Stroudsburg.....	Stroudsburg Passenger Ry. Co.....	July 1, 1906	June 30, 1907	2.75	2.75	70,000	70,000
105	Stroudsburg, Delaware Water Gap.....	Stroudsburg and Water Gap Street Ry. Co.....	Jan. 1, 1906	Dec. 31, 1907	4.20	4.20	130,000	120,000
106	Sunbury, Northumberland.....	Sunbury and Northumberland Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.30	4.30	125,000	125,000
107	Tamaqua, Mauch Chunk.....	Eastern Pennsylvania Rys. Co. (holding Co. and operating Tamaqua and Lansford Street Ry. Co.).....	Jan. 1, 1907	Dec. 31, 1907	19.70	19.70	6,000,000	4,974,900
108	Tarentum, Aspinwall, Natrona.....	Allegheny Valley Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	20.20	20.20	2,000,000	2,000,000
109	Titusville, Pleasantville, Hyde- town, Tryonville.....	Titusville Electric Traction Co.....	July 1, 1906	June 30, 1907	16.71	16.71	100,000	100,000
110	Warren, Clarendon, Sheffield.....	Warren Street Ry. Co.....	July 1, 1906	June 30, 1907	20.25	20.25	200,000	200,000
111	Warren, Jamestown (N. Y.).....	Warren and Jamestown Street Ry. Co.....	July 1, 1906	June 30, 1907	20.32	21.82	200,000	200,000
112	Washington, Canonsburg.....	Washington and Canonsburg Ry. Co.....	Apr. 1, 1907	Mar. 31, 1908	14.85	14.85	1,000,000	1,000,000
113	Waynesboro, Greencastle, Routeville.....	Chambersburg, Greencastle and Waynes- boro Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	15.60	15.60	300,000	290,000
114	West Chester, Kennett Square, Downingtown, Coatesville.....	West Chester Street Ry. Co.....	July 1, 1906	June 30, 1907	29.23	29.57	1,000,000	250,000
115	Wilkes-Barre, Pittston, King- ston, Nanticoke, Plymouth, Ashley.....	Wilkes-Barre and Wyoming Valley Traction Co. ¹	Jan. 1, 1907	Dec. 31, 1907	² 23.63	74.18	5,000,000	5,000,000
115a	.....	Wilkes-Barre and Kingston Passenger Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	7.60	.....	100,000	100,000
115b	.....	Wilkes-Barre and Suburban Street Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	11.95	.....	100,000	100,000
115c	.....	Coalville Passenger Ry. Co. (lessor)....	Jan. 1, 1907	Dec. 31, 1907	7.41	.....	62,400	62,400
115d	.....	Pittston Street Car Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	7.90	.....	200,000	200,000
115e	.....	Wilkes-Barre and West Side Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	12.64	.....	100,000	100,000
115f	.....	Plymouth Bridge Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	(³)	.....	75,000	75,000
115g	.....	Plymouth and Larksville Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	3.05	.....	75,000	75,000
116	Wilkes-Barre, Luzerne, Dallas, Harveys Lake.....	Wilkes-Barre, Dallas and Harvey's Lake Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	13.12	16.62	200,000	200,000
117	Williamsport.....	Valliant Traction Co.....	July 1, 1906	June 30, 1907	3.70	3.70	200,000	101,700
118	do.....	South Side Passenger Ry. Co.....	July 1, 1906	June 30, 1907	1.95	1.95	25,000	25,000
119	do.....	Williamsport Passenger Ry. Co.....	July 1, 1906	June 30, 1907	9.00	9.00	600,000	338,550
120	do.....	East End Passenger Ry. Co.....	July 1, 1906	June 30, 1907	2.93	2.93	50,000	18,000
121	Yardley, Taylorsville, New Hope, Trenton, Lambertville (N. J.).....	Trenton, New Hope and Lambertville Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	12.75	14.65	400,000	400,000
	Yardley.....	Yardley, Morrisville and Trenton Street Ry. Co. (See New Jersey.).....						
122	York, Dover, York Haven, Wrightsville, Dallastown, Windsor.....	York Railways Co. ¹¹	Jan. 1, 1907	Dec. 31, 1907	60.33	60.33	4,100,000	4,100,000
RHODE ISLAND.								
Total for state.....					¹² 419.92	.....	24,555,400	24,555,400
1	Narragansett Pier, Wickford, East Greenwich, Newport.....	Sea View R. R. Co.....	July 1, 1906	June 30, 1907	19.91	19.91	700,000	700,000
	.....	Newport and Fall River Street Ry. Co. (See Massachusetts.).....						
2	Newport, Portsmouth.....	Newport and Providence Ry. Co.....	July 1, 1906	June 30, 1907	14.17	14.17	500,000	500,000
3	Providence and vicinity, Bristol, Coventry, East Greenwich, Pawtucket, Woonsocket, Blackstone (Mass.).....	Rhode Island Co.....	July 1, 1907	June 30, 1908	¹⁴ 43.95	316.00	7,780,400	7,780,400
3a	.....	Union R. R. Co. (lessor).....	July 1, 1907	June 30, 1908	165.09	.....	9,000,000	9,000,000
3b	.....	Rhode Island Suburban Ry. Co. (lessor).....	July 1, 1907	June 30, 1908	76.75	.....	5,000,000	5,000,000
3c	.....	Pawtucket Street Ry. Co. (lessor).....	July 1, 1907	June 30, 1908	32.11	.....	500,000	500,000
4	Providence, Warren, Bristol, Fall River (Mass.).....	New York, New Haven and Hartford R. R. Co. (Providence, Warren and Bristol branch).....	July 1, 1906	June 30, 1907	¹⁴ 34.85	34.85	(¹⁷)	(¹⁷)
5	Providence, Danielson (Conn.).....	Providence and Danielson Ry. Co.....	July 1, 1906	June 30, 1907	¹⁵ 27.71	¹⁶ 27.71	1,000,000	1,000,000
6	Westerly, Watch Hill.....	Pawcatuck Valley Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	6.38	6.38	75,000	75,000

¹ Operations largely confined to summer season.² This company has also a floating debt.³ Includes permanent or other investments.⁴ Includes 10 miles in New York.⁵ Includes electric-light plant and permanent or other investments.⁶ Includes permanent or other investments. This company has also a floating debt.⁷ Includes Plymouth Street Ry. Co.; Pittston, Moosic and Pleasant Valley Street Ry. Co.; West Pittston and Wyoming Street Ry. Co.; Nanticoke Street Ry. Co.; and Wilkes-Barre and East Side Ry. Co.⁸ Includes 0.50 mile leased from steam railroad.⁹ This company owns no track. Bridge used by lines of Wilkes-Barre and Wyoming Valley Traction Co.¹⁰ Net income turned over to holding company.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$250,000 50,000	\$250,000 60,000	6	\$2,400					\$250,000	\$222,000	5	\$472,000 40,000	\$43,250	103 103a
70,000 120,000	70,000 120,000	5	3,500					15,000 120,000	5,000 80,000	4 5	75,000 200,000	27,273 47,619	104 105
125,000	125,000										\$125,000	29,070	106
5,000,000	4,000,000			\$1,000,000	\$974,900			6,000,000	3,186,000	5	\$8,160,900	414,259	107
2,000,000 100,000	2,000,000 100,000							2,000,000 100,000	1,300,000 100,000	5 6	\$3,300,000 200,000	163,366 11,000	108 109
200,000 200,000	200,000 200,000	6	12,000					200,000 300,000	200,000 300,000	5 5	\$400,000 \$300,000	19,753 24,606	110 111
1,000,000 150,000	1,000,000 150,000			150,000	150,000	6	\$9,000	650,000 300,000	650,000 250,000	5 5	\$1,650,000 \$550,000	111,039 35,236	112 113
1,000,000	350,000							1,000,000	600,000	5	\$950,000	32,501	114
5,000,000	5,000,000	3	150,000					2,075,000	2,045,000	5	\$7,045,000		115
100,000	100,000	6	6,000					40,000	40,000	5	140,000		115a
100,000	100,000	6	6,000					40,000	40,000	4	140,000		115b
62,400 200,000 100,000	62,400 200,000 100,000	6 6	3,744 6,000					200,000 35,000	200,000 35,000	6 5	62,400 400,000 135,000	112,356	115c 115d 115e
75,000 75,000	75,000 75,000	6 6	4,500					120,000 75,000	131,000 75,000	5 5	\$206,000 150,000		115f 115g
200,000	200,000	2	4,000					150,000	150,000	5	\$350,000	26,677	116
200,000 25,000 600,000 20,000 400,000	200,000 25,000 338,550 18,000 400,000	8 8 (v) 8	8,136 2,000 1,440					100,000 25,000 169,000 50,000 400,000	100,000 25,000 169,000 18,000 400,000	6 6 6 6 5	201,700 50,000 \$507,550 36,000 800,000	54,514 25,641 30,394 12,287 62,745	117 118 119 120 121
2,500,000	2,500,000			1,600,000	1,600,000			3,400,000	3,400,000	5	\$7,300,000	124,316	122
24,355,400	24,355,400		850,000	200,000	200,000			11,341,200	7,070,200		31,625,600	\$81,494	
700,000	700,000							1,000,000	598,000	5	\$1,258,000	63,184	1
300,000 7,780,400	300,000 7,780,400			200,000	200,000			425,000 929,000	425,000 414,000	5 5	925,000 \$8,194,400	65,279	2 3
9,000,000 5,000,000	9,000,000 5,000,000	8 2	720,000 100,000					3,000,000 \$5,316,200	25,000 \$4,998,200	4 4.5, 6	9,025,000 9,998,200	87,465	2a 3b
500,000 (v)	500,000 (v)	6	30,000	(v)	(v)			(v)	(v)		500,000 (v)		2c 4
1,000,000 75,000	1,000,000 75,000							600,000 80,000	600,000 80,000	5 6	\$1,000,000 \$125,000	57,741 19,502	5 6

¹¹ This is a combined report for seven constituent companies for ten months and the York Railways Co. (consolidated) for two months.

¹² Includes 11.75 miles lying outside of state, but exclusive of 22.50 miles in state owned by outside companies. Total operated in state, 430.76 miles.

¹³ Exclusive of 34.85 miles of track for which no capital was reported, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$244,642.

¹⁴ Includes 3.35 miles in Massachusetts.

¹⁵ Includes \$247,200, 5 per cent bonds of Pawtuxet Valley Electric Ry.; and \$39,000, 6 per cent bonds of Cumberland Street Ry.

¹⁶ Includes 6.37 miles in Massachusetts.

¹⁷ Capitalization included in that of steam railroad.

¹⁸ Includes 2.03 miles in Connecticut.

¹⁹ Cars operated by other companies from termini of road owned.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
SOUTH CAROLINA.								
	Total for state.....				121.26		\$4,295,000	\$3,984,200
1	Anderson, Belton.....	Anderson Traction Co.....	May 1, 1907	Apr. 30, 1908	18.66	18.66	280,000	163,200
2	Aiken; Augusta (Ga.).....	Augusta and Aiken Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	25.18	25.18	10,000	10,000
3	Charleston; Mt. Pleasant; Sullivan's Island, Isle of Palms.....	Charleston Consolidated Railway, Gas and Electric Co.....	Mar. 1, 1907	Feb. 29, 1908	36.23	36.23	1,500,000	1,500,000
4	Columbia and suburbs.....	Columbia Electric Street Railway, Light and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	21.46	21.46	1,600,000	1,600,000
5	Greenville.....	Greenville Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	12.23	12.23	500,000	305,000
6	Orangeburg.....	Orangeburg City Street Ry. Co. ³	Jan. 1, 1907	Dec. 31, 1907	1.50	1.50	5,000	5,000
7	Rock Hill.....	Rock Hill Water Supply, Electric Light and Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	16.00	16.00	400,000	400,000
7	Spartanburg, Glendale, Clifton.....	Spartanburg Railway, Gas and Electric Co.....	Jan. 1, 1907	Dec. 31, 1907				
SOUTH DAKOTA.								
	Total for state.....				5.00		500,000	85,000
1	Sioux Falls.....	Sioux Falls Traction System.....	Oct. 5, 1907	Dec. 31, 1907	5.00	5.00	500,000	\$85,000
TENNESSEE.								
	Total for state.....				297.50		17,590,000	17,499,100
1	Bristol; Bristol (Va.).....	Bristol Belt Line Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.75	4.75	100,000	100,000
2	Chattanooga; Rossville, Dodge (Ga.).....	Chattanooga Rys. Co.....	Jan. 1, 1907	Dec. 31, 1907	43.24	43.24	3,000,000	3,000,000
3	Clarksville.....	Clarksville Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	5.60	5.60	250,000	250,000
4	Jackson.....	Jackson Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	7.50	7.50	600,000	600,000
5	Johnson City.....	Johnson City Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	4.10	4.10	40,000	8,500
6	Knoxville and vicinity.....	Knoxville Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	39.25	39.25	2,000,000	1,991,500
7	Lookout Mountain.....	Lookout Mountain Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.00	5.00	100,000	100,000
8	Memphis and vicinity.....	Memphis Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	109.59	109.59	5,000,000	5,000,000
9	Nashville and vicinity.....	Nashville Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	78.47	78.47	6,500,000	6,448,700
TEXAS.								
	Total for state.....				414.87		19,308,500	13,371,150
1	Austin.....	Austin Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	15.21	15.21	350,000	275,000
2	Beaumont.....	Beaumont Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	12.25	12.25	600,000	600,000
3	Bonham.....	Bonham Electric Railway, Light and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	2.50	2.50	25,000	25,000
4	Corpus Christi.....	Corpus Christi Transit Co.....	Nov. 1, 1906	Oct. 31, 1907	4.20	4.20	120,000	20,000
5	Dallas.....	Dallas Consolidated Electric Street Ry. Co.....	Oct. 1, 1906	Sept. 30, 1907	41.50	42.86	2,000,000	1,710,000
6	do.....	Metropolitan Street Ry. Co.....	Oct. 1, 1906	Sept. 30, 1907	5.00	12.14	4,500,000	500,000
7	do.....	Rapid Transit Ry. Co.....	Oct. 1, 1906	Sept. 30, 1907	11.45	12.00	100,000	48,000
8	Denton, Sherman.....	Denton and Sherman Ry. Co.....	May 1, 1907	Apr. 30, 1908	16.25	16.25	300,000	250,000
9	Denton.....	Denton Interurban Railway and Power Plant Co.....	Nov. 1, 1907	Dec. 31, 1907	3.33	3.33	100,000	80,000
10	El Paso; Juarez (Mexico).....	El Paso Electric Ry. Co. ¹⁰	Jan. 1, 1907	Dec. 31, 1907	25.95	25.95	950,000	890,000
11	Fort Worth, North Fort Worth.....	Citizens Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	15.50	15.50	1,000,000	1,000,000
12	Fort Worth, Dallas.....	Northern Texas Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	74.61	74.61	2,500,000	2,500,000
13	Galveston.....	Galveston Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	33.49	33.49	2,000,000	1,500,000
14	Houston and suburbs.....	Houston Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	45.50	45.50	3,000,000	3,000,000
15	Laredo.....	Laredo Electric and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	7.09	7.09	100,000	100,000
16	Longview.....	Longview and Junction Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	.86	.86	15,000	6,000
17	Mineral Wells.....	Mineral Wells and Lakewood Park Street Ry. Co.....	Jan. 8, 1907	Jan. 7, 1908	2.25	2.25	25,000	25,000
18	Paris.....	Paris Transit Co.....	Jan. 1, 1907	Dec. 31, 1907	5.25	5.25	100,000	100,000
19	San Antonio.....	San Antonio Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	57.14	57.14	1,000,000	200,000
20	Seguin.....	Seguin Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	1.20	1.20	7,500	7,500
21	Temple, Belton.....	Belton and Temple Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	14.29	14.29	200,000	201,750
22	Waco.....	Citizens Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	14.29	14.29	350,000	350,000
23	Waxahachie.....	Waxahachie Street Ry. Co., including Lake Park Street Ry.....	Jan. 1, 1907	Dec. 31, 1907	4.74	4.74	25,000	6,900
UTAH.								
	Total for state.....				122.54		10,350,000	6,232,500
1	Ogden, Hot Springs.....	Ogden Rapid Transit Co.....	July 1, 1907	June 30, 1908	13.50	21.25	100,000	100,000
1a	Ogden and Northwestern R. R. Co. (lessor). ¹⁷		Jan. 1, 1907	Dec. 31, 1907	7.75		200,000	20,000
2	Salt Lake City.....	Salt Lake and Utah Valley Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	3.04	3.04	50,000	50,000
3	Salt Lake City, Murray.....	Utah Light and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	98.25	98.25	10,000,000	6,062,500

¹ Includes 0.68 mile lying outside of state. Total operated in state, 121.58 miles.² Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$1,296,500.³ This company has also a floating debt.⁴ Includes 0.68 mile in Georgia.⁵ Includes electric-light plant and permanent or other investments.⁶ Includes electric-light plant and permanent or other investments. This company has also a floating debt.⁷ Not operated during census year.⁸ Floating debt, securities not yet issued.⁹ Includes 5.35 miles lying outside of state. Total operated in state, 282.15 miles.¹⁰ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$270,000.¹¹ Includes 1 mile in Virginia.¹² Includes 4.35 miles in Georgia.¹³ Includes electric-light plant.¹⁴ Includes electric-light plant. This company has also a floating debt.

GENERAL TABLES.

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STOCK, AND FUNDED DEBT, BY COMPANIES, 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capitalization outstanding.	Capitalization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount outstanding.	Rates of interest, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$1,085,000	\$1,384,200			\$400,000	\$400,000			\$1,700,000	\$4,786,000		\$8,750,200	\$266,786	
280,000	163,200							500,000	500,000	5	4,163,200	8,746	1
10,000	10,000							2,500,000	2,500,000	5	4,000,000	20,254	2
1,500,000	1,500,000											110,406	3
1,000,000	1,000,000			600,000	600,000			2,000,000	1,066,000	5	2,066,000	124,231	4
500,000	300,000							250,000	250,000	5	2,558,000	45,402	5
5,000	5,000										8,000	3,233	6
400,000	400,000							450,000	450,000	5	2,850,000	53,125	7
400,000	85,000			100,000							85,000	17,000	
400,000	85,000			100,000							85,000	17,000	1
11,030,000	10,970,200		\$79,676	6,560,000	6,528,900		\$305,000	22,805,000	19,348,000		36,847,100	122,946	
100,000	100,000			1,000,000	1,000,000	5	50,000	75,000	75,000	6	175,000	36,842	1
2,000,000	2,000,000			60,000	60,000			3,000,000	2,417,000	5	5,417,000	123,378	2
100,000	190,000							200,000			250,000	44,643	3
600,000	600,000							500,000	500,000	5	1,100,000	146,637	4
40,000	8,500							30,000	4,000	5	112,500	3,049	5
1,700,000	1,491,900	4	39,676	500,000	500,000	6	30,000	3,000,000	2,563,000	5	4,454,900	116,048	6
100,000	100,000	20	20,000	2,500,000	2,500,000	5	125,000	10,000,000	7,845,000	5, 6	10,000,000	20,000	7
2,500,000	2,500,000			2,500,000	2,468,900			6,000,000	5,944,000	5	12,845,000	117,210	8
4,000,000	3,979,900										12,362,700	157,329	9
16,968,500	11,661,150		194,170	2,800,000	1,710,000		61,000	16,761,000	10,200,900		23,572,100	55,239	
350,000	275,000	5	13,750					350,000	350,000	5	625,000	41,091	1
600,000	600,000							800,000	500,000	5	1,100,000	89,796	2
25,000	25,000							10,000	5,000	6	30,000	12,000	3
17,20,000	17,20,000							17,20,000	17,20,000	6	17,20,000	9,524	4
1,500,000	1,500,000		(¹⁰)	500,000	210,000		(¹¹)	2,000,000	1,050,000	5	2,700,000	66,410	5
4,500,000	500,000							4,000,000	800,000	5	1,000,000	167,785	6
100,000	48,000		(¹²)					200,000	200,000	5, 6	224,000	21,639	7
300,000	250,000							400,000	315,000	5, 6	555,000	34,769	8
100,000	50,000										50,000	15,015	9
950,000	896,000	2	17,920								896,000	34,528	10
1,000,000	1,000,000							511,000	511,000	5	1,511,000	97,494	11
2,300,000	2,300,000	6	102,500					2,500,000	2,500,000	5	5,000,000	67,015	12
1,000,000	1,000,000			1,000,000	300,000	6	21,000	2,500,000	1,106,000	5	2,406,000	77,814	13
2,000,000	2,000,000			1,000,000	1,000,000	6	60,000	2,500,000	2,067,000	5	5,067,000	111,802	14
100,000	100,000							100,000	100,000	5	200,000	28,209	15
24,000	24,000										24,000	6,977	16
25,000	25,000										25,000	11,111	17
100,000	100,000							100,000	100,000	5	200,000	38,085	18
1,000,000	300,000							300,000	300,000	6	500,000	8,750	19
27,500	27,500										27,500	6,250	20
300,000	201,750							300,000	197,050	5	298,800	27,908	21
350,000	350,000							250,000	350,000	6	700,000	48,985	22
35,000	6,000							20,000	9,900	5	16,800	3,544	23
6,350,000	2,232,500			4,000,000	4,000,000			10,200,000	6,708,000		12,941,500	105,610	
100,000	100,000							200,000	200,000	5	300,000	17,882	1
200,000	20,000							60,000	60,000	5	80,000		1a
50,000	80,000										50,000	16,447	2
6,000,000	2,002,500			4,000,000	4,000,000			10,000,000	6,440,000	4, 5, 6	12,511,500	127,944	3

¹⁰ Includes 1.24 miles lying outside of state, but exclusive of 5.17 miles in state owned by an outside company. Total operated in state, 418.90 miles.

¹¹ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$655,234.

¹² The capitalization was reduced to this amount soon after the end of the census year.

¹³ Net income turned over to holding company.

¹⁴ Includes El Paso and Juarez Traction Co.

¹⁵ Includes 1.24 miles in Mexico.

¹⁶ Includes permanent or other investments. This company has also a floating debt.

¹⁷ Dividends paid on \$350,000 only.

¹⁸ Includes permanent or other investments.

¹⁹ Cash investment.

²⁰ Includes permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc.

²¹ Formerly steam road, recently electrified and leased and operated part of year by Ogden Rapid Transit Co.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
VERMONT.								
	Total for state.....				1124.31		\$3,900,000	\$1,370,000
1	Barre, Montpelier.....	Barre and Montpelier Traction and Power Co.	July 1, 1906	June 30, 1907	9.20	9.20	150,000	120,000
2	Bellows Falls, Saxtons River....	Bellows Falls and Saxtons River Street Ry. Co.	July 1, 1906	June 30, 1907	6.54	6.54	100,000	100,000
3	Bennington, North Bennington, Pownall, Hoosick Falls (N. Y.), Brattleboro, West Brattleboro....	Bennington and North Adams Street Ry. Co.	July 1, 1906	June 30, 1907	29.15	29.15	650,000	650,000
4		Twin State Gas and Electric Co., railway department (formerly Brattleboro Street Ry.)	Jan. 1, 1907	Dec. 31, 1907	5.00	5.00	125,000	125,000
5	Burlington, Winooski.....	Burlington Traction Co.....	July 1, 1906	June 30, 1907	12.00	12.00	200,000	200,000
6	Rutland, West Rutland, Castleton, Fair Haven.....	Rutland Railway, Light and Power Co..	July 1, 1906	June 30, 1907	24.11	24.11	2,000,000	1,500,000
7	St. Albans, Swanton.....	St. Albans Street Ry. Co. ⁶	July 1, 1906	June 30, 1907	13.50	13.50	200,000	200,000
8	Springfield; Charlestown (N. H.).....	Springfield Electric Ry. Co.....	July 1, 1906	June 30, 1907	8.32	8.32	75,000	75,000
9	Stowe, Waterbury.....	Mount Mansfield Electric R. R. Co.....	July 1, 1906	June 30, 1907	11.25	11.25	300,000	300,000
10	Winooski, Essex Junction.....	Military Post Street Ry. Co.....	July 1, 1906	June 30, 1907	5.24	5.24	100,000	100,000
VIRGINIA.								
	Total for state.....				515.54		46,910,219	33,671,800
1	Ballston, Falls Church, Vienna, Fairfax; Washington (D. C.).....	Washington, Arlington and Falls Church Ry. Co.	July 1, 1907	June 30, 1908	25.83	25.83	100,000	100,000
2	Charlottesville.....	Charlottesville and Albemarle Ry. Co.....	July 1, 1906	June 30, 1907	3.45	3.45	100,000	90,000
3	Danville and suburbs.....	Danville Railway and Electric Co.	Nov. 1, 1906	Oct. 31, 1907	6.72	6.72	300,000	100,000
	Graham.....	Bluestone Traction Co. (See West Virginia.)						
4	Hampton, Newport News.....	Hampton Roads Traction Co.	July 1, 1906	June 30, 1907	12.19	12.19	500,000	500,000
5	Lynchburg and suburbs.....	Lynchburg Traction and Light Co. ¹² ...	May 1, 1906	Apr. 30, 1907	13.09	13.09	750,000	750,000
6	Newport News.....	Citizens Railway, Light and Power Co.	July 1, 1906	June 30, 1907	5.02	5.32	500,000	200,000
7	Newport News, Old Point Comfort.....	Newport News and Old Point Railway and Electric Co.	July 1, 1906	June 30, 1907	24.25	25.35	2,000,000	1,800,000
8	Norfolk.....	Norfolk City and Suburban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	3.58	3.58	50,000	50,000
9	Norfolk, Cape Henry, Virginia Beach.....	Norfolk and Southern Ry. Co. (electric division).	Jan. 1, 1907	Dec. 31, 1907	60.79	62.53	(16)	(16)
10	Norfolk, Ocean View.....	Norfolk and Ocean View Ry. Co. ¹³	July 1, 1906	June 30, 1907	13.99	13.99	500,000	100,000
11	Norfolk, Sewall Point.....	Norfolk and Atlantic Terminal Co.	July 1, 1906	June 30, 1907	20.54	20.54	5,000,000	500,000
12	Norfolk, Portsmouth, Berkley, Ocean View.....	Norfolk and Portsmouth Traction Co.....	July 1, 1906	June 30, 1907	48.39	104.39	6,000,000	6,000,000
12a		Norfolk Railway and Light Co. (lessor).	July 1, 1906	June 30, 1907	53.80		5,000,000	1,650,000
13	Radford.....	Radford Water Power Co.	July 1, 1906	June 30, 1907	2.63	2.63	50,000	50,000
14	Richmond, Ashland.....	Richmond and Chesapeake Bay Ry. Co.	Oct. 28, 1907	Dec. 31, 1907	15.46	15.46	970,219	947,719
15	Richmond, Petersburg.....	Virginia Passenger and Power Co., including Southside Railway and Development Co. and Westhampton Park Electric Ry. Co. ¹⁴	July 1, 1906	June 30, 1907	18.14	18.14	15,000,000	15,000,000
16	Richmond, Manchester and vicinity.....	Richmond Passenger and Power Co. ¹⁵ ...	July 1, 1906	June 30, 1907	54.95	54.95	3,000,000	1,200,000
17	Richmond.....	Richmond Traction Co. ¹⁶	July 1, 1906	June 30, 1907	21.44	21.44	2,000,000	1,000,000
18	Manchester, Petersburg.....	Richmond and Petersburg Electric Ry. Co. ¹⁷	July 1, 1906	June 30, 1907	22.65	22.65	1,000,000	600,000
19	Roanoke, Salem, Vinton.....	Roanoke Railway and Electric Co.	July 1, 1906	June 30, 1907	21.64	21.64	500,000	500,000
20	Staunton.....	Blue Ridge Light and Power Co., including Augusta Electric Co.	July 1, 1906	June 30, 1907	5.25	5.25	50,000	25,000
21	Tazewell.....	Tazewell Street Ry. Co.	July 1, 1906	June 30, 1907	2.00	2.00	40,000	29,550
22	Washington (D. C.); Alexandria, Mt. Vernon.....	Washington, Alexandria and Mt. Vernon Ry. Co.	Jan. 1, 1907	Dec. 31, 1907	28.20	28.20	1,500,000	1,500,000
23	Washington (D. C.); Great Falls.....	Great Falls and Old Dominion R. R. Co.	Jan. 1, 1907	Dec. 31, 1907	28.34	28.34	2,000,000	1,000,000
WASHINGTON.								
	Total for state.....				764.73		54,999,800	40,454,900
1	Aberdeen, Hoquiam, Cosmopolis.....	Grays Harbor Railway and Light Co....	Jan. 1, 1907	Dec. 31, 1907	11.60	11.60	500,000	800,000
2	Bellingham.....	Whatcom County Railway and Light Co.	Jan. 1, 1907	Dec. 31, 1907	18.21	18.21	1,500,000	900,000
3	Everett, Snohomish.....	Puget Sound International Railway and Power Co.	Jan. 1, 1907	Dec. 31, 1907		19.93	200,000	200,000
3a	do.....	Everett Railway, Light and Water Co. (lessor). ¹⁸	Jan. 1, 1907	Dec. 31, 1907	19.93		2,000,000	2,000,000

¹ Includes 10.93 miles lying outside of state. Total operated in state, 113.38 miles.² Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$700,000.³ This company has also a floating debt.⁴ Includes 8.00 miles in New York.⁵ Amount apportioned to railway department.⁶ Operated by receivers.⁷ Includes 2.67 miles in New Hampshire.⁸ Includes 3.44 miles leased from steam railroad and 4.32 miles lying outside of state, but exclusive of 1.77 miles in state owned by outside companies. Total operated in state, 52.90 miles.⁹ Exclusive of 3.44 miles of track leased from steam railroad, 60.79 miles of track for which no capital was reported, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$9,216,650.¹⁰ Cars operated by another company from terminus of road owned.¹¹ Includes electric-light plant.¹² Includes Lynchburg Water Power Co.¹³ Includes \$500,000 bonds of Lynchburg Water Power Co.¹⁴ Includes electric-light plant and permanent or other investments.¹⁵ Includes electric-light plant and permanent or other investments. This company has also a floating debt.¹⁶ Capitalization included in that of steam railroad.¹⁷ Includes Bay Shore Terminal Co., which was purchased by this company in February, 1907.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$3,900,000	\$3,370,000		\$18,000					\$3,375,000	\$2,548,667		\$5,915,667	\$41,981	
150,000	120,000							100,000	100,000	5	\$220,000	23,912	1
100,000	100,000							75,000	75,000	5	175,000	26,758	2
650,000	650,000							450,000	448,667	5.6	\$1,098,667	37,690	3
\$125,000	\$125,000							\$25,000	\$25,000	4½	\$150,000	30,000	4
200,000	200,000	6	12,000					150,000	125,000	6	325,000	27,083	5
2,000,000	1,500,000							2,000,000	1,200,000	5	2,700,000	111,987	6
200,000	200,000							200,000	200,000	5	400,000	29,630	7
75,000	75,000							100,000	100,000	5	\$175,000	21,034	8
300,000	300,000							200,000	200,000	5	500,000	44,444	9
100,000	100,000	6	6,000					75,000	75,000	5	175,000	33,397	10
39,665,219	27,746,809		101,750	\$7,225,000	\$5,925,000			\$2,447,000	\$4,770,800		\$8,442,000	\$121,221	
100,000	100,000							511,000	411,000	5.6	511,000	12,781	1
100,000	69,000							100,000	92,800	5	\$162,400	47,072	2
300,000	100,000							400,000	235,000	5	335,000	49,851	3
500,000	500,000							700,000	700,000	4	1,200,000	98,441	4
750,000	750,000	2½	18,750					\$1,500,000	\$1,500,000	5	\$2,250,000	160,829	5
500,000	200,000							900,000	876,000	5.6	\$1,076,000	214,343	6
1,275,000	1,075,000			725,000	725,000			4,900,000	2,508,000	5	\$4,308,000	176,920	7
50,000	50,000							50,000	50,000	5	100,000	27,933	8
(18)	(18)			(18)	(18)			(18)	(18)		(18)		9
500,000	100,000							1,500,000	1,000,000	5	1,100,000	78,628	10
5,000,000	500,000							500,000	500,000	5	\$1,000,000	46,685	11
6,000,000	6,000,000							8,000,000	4,302,000	5	\$10,302,000	153,281	12
5,000,000	1,650,000	2	33,000					4,000,000	4,000,000	5.6	\$5,050,000	57,034	13
50,000	50,000							100,000	100,000	6	\$150,000	61,301	14
970,219	\$947,719			5,000,000	5,000,000			10,135,000	11,981,000	5	\$26,983,000	296,189	15
10,000,000	10,000,000												
1,500,000	1,000,000			1,500,000	200,000			4,400,000	3,000,000	5	\$4,200,000	296,189	16
2,000,000	1,000,000							500,000	500,000	5	1,500,000		17
1,000,000	600,000							1,000,000	500,000	5	1,100,000		18
500,000	500,000	7	35,000					750,000	615,000	5	\$1,115,000	51,825	19
50,000	25,000										\$25,000	4,702	20
40,000	29,550										\$29,550	14,775	21
1,500,000	1,500,000	1	15,000					2,500,000	1,900,000	5	\$2,400,000	120,567	22
2,000,000	1,000,000							1,000,000			1,000,000	35,285	23
34,899,800	29,518,000		118,267	20,100,000	10,938,000		\$438,175	\$2,577,000	\$3,414,000		\$3,858,900	\$75,702	
500,000	500,000	3½	17,500					500,000	500,000	6	\$1,000,000	86,207	1
750,000	750,000			750,000	240,900	5	\$13,236	2,500,000	1,492,000	5	\$2,482,900	136,348	2
200,000	200,000										\$200,000	303,677	3
2,000,000	2,000,000							2,000,000	2,000,000	5	\$4,000,000		2a

¹⁸ Includes 0.32 mile leased from steam railroad.

¹⁹ Includes permanent or other investments.

²⁰ Includes \$945,219 floating debt; bonds not yet issued.

²¹ Operated by receiver.

²² Includes 3.12 miles leased from steam railroad.

²³ The value of the properties turned over to receiver was \$11,877,000; using this total in place of the capital stock and bonds outstanding, the liability per mile of track was \$104,135.

²⁴ Includes electric-light plant. This company has also a floating debt.

²⁵ Includes 4 miles in District of Columbia.

²⁶ Includes permanent or other investments. This company has also a floating debt.

²⁷ Includes 0.23 mile in District of Columbia.

²⁸ Includes 6.19 miles leased from steam railroad and 34.46 miles lying outside of state. Total operated in state, 730.27 miles.

²⁹ Exclusive of 6.19 miles of track leased from steam railroad, and permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$5,445,082.

³⁰ Dividend not paid on entire amount outstanding.

³¹ This company operated independently from January 1 to August 1, 1907, and was leased to Puget Sound International Railway and Power Co. on the latter date. Operating statistics for the seven months included in lessee's report.

³² Includes 6.19 miles leased from steam railroad.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From—	To—	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
WASHINGTON—Continued.								
4	Olympia, Tumwater.....	Olympia Light and Power Co.....	Oct. 1, 1906	Sept. 30, 1907	4.42	4.42	\$165,000	\$145,000
5	Seattle.....	Loyal Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	1.75	2.35	100,000	100,000
6	Seattle, Ballard.....	Seattle-Everett Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	15.75	15.75	1,750,000	1,750,000
7	Seattle and suburbs.....	Seattle Electric Co.....	Jan. 1, 1907	Dec. 31, 1907	155.06	155.77	12,500,000	10,000,000
8	Seattle, Renton.....	Seattle, Renton and Southern Ry. Co.....	Feb. 1, 1907	Jan. 31, 1908	19.50	19.50	1,250,000	1,250,000
9	Spokane, Hilliard, Cheney, Medical Lake.....	Washington Water Power Co. (railway department).....	Jan. 1, 1907	Dec. 31, 1907	96.21	96.21	\$2,934,900	\$1,467,900
10	Spokane, Rosalia, Colfax, Garfield; Moscow, Couderd-Albino, Hayden Lake (Idaho).....	Spokane and Inland Empire R. R. Co.....	July 1, 1906	June 30, 1907	222.19	222.19	20,000,000	14,254,900
11	Tacoma, Lake City.....	Pacific Traction Company of Maine.....	Aug. 1, 1907	Dec. 31, 1907	16.32	16.32	3,000,000	1,500,000
12	Tacoma, Kent, Renton, Seattle.....	Puget Sound Electric Ry.....	Jan. 1, 1907	Dec. 31, 1907	61.57	70.00	6,500,000	3,925,200
13	Tacoma, Puyallup, Spanaway, Steilacoom.....	Tacoma Railway and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	104.54	106.28	2,000,000	2,000,000
14	Walla Walla; Milton (Oreg.).....	Walla Walla Valley Traction Co. ⁹	Jan. 1, 1907	Dec. 31, 1907	17.68	17.68	600,000	350,000
WEST VIRGINIA.								
Total for state.....					266.41		12,578,333	10,024,075
1	Bluefield; Graham (Va.).....	Bluestone Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	3.85	3.85	100,000	110,000
2	Charleston.....	Kanawha Valley Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	11.15	11.15	500,000	500,000
3	Fairmont, Clarksburg.....	Fairmont and Clarksburg Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	42.42	42.42	2,000,000	1,800,000
4	Huntington, Guyandotte; Catterburg, Ashland (Ky.); Iron- ton, Hanging Rock (Ohio).....	Camden Interstate Ry. Co. (Ohio Valley Electric, 1908).....	Jan. 1, 1907	Dec. 31, 1907	22.26	22.26	2,000,000	2,000,000
5	Mannington.....	Mannington Light and Power Co.....	June 1, 1906	May 31, 1907	2.00	1.00	100,000	100,000
6	Morgantown.....	Union Utility Co.....	Apr. 1, 1907	Mar. 31, 1908	4.13	6.13	\$333,333	\$200,800
6a	do.....	Morgantown and Pittsburgh Ry. Co. (lessor).....	Apr. 1, 1907	Mar. 31, 1908	2.00		50,000	50,000
7	Morgantown and vicinity.....	Sabron Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	3.17	3.92	25,000	25,000
8	Newell; East Liverpool (Ohio).....	Newell Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	2.40	2.72	10,000	10,000
9	New Martinsville, Sistersville.....	Wetzel and Tyler Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	12.03	12.03	300,000	1,000
10	Parkersburg, Williamstown; Marietta (Ohio).....	Parkersburg, Marietta and Interurban Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	33.80	33.80	500,000	440,000
11	Wellsburg; Steubenville (Ohio).....	Tri-State Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	8.00	8.00	100,000	\$159,575
12	Wheeling.....	City Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	10.71	10.71	1,000,000	444,000
13	Wheeling, Moundsville; Bridgeport, Belairs, Barton, Martins Ferry (Ohio).....	Wheeling Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	43.66	52.85	2,000,000	1,847,700
13a	do.....	Wheeling and Western Ry. Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	7.34		500,000	\$220,000
13b	do.....	Belairs South Western Traction Co. (lessor).....	Jan. 1, 1907	Dec. 31, 1907	1.85		500,000	500,000
14	Wheeling, Elm Grove.....	City and Elm Grove R. R. Co.....	Jan. 1, 1907	Dec. 31, 1907	28.50	28.50	2,000,000	2,000,000
15	Wheeling, Wellsburg, Lazenbyville.....	Pan Handle Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	17.14	17.14	800,000	500,000
WISCONSIN.								
Total for state.....					590.65		41,567,000	29,864,400
1	Appleton, Kaukauna, Neenah.....	Wisconsin Traction, Light, Heat and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	19.58	19.58	1,000,000	699,400
2	Ashland.....	Ashland Light, Power and Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	6.80	6.80	\$100,000	200,000
3	Beloit.....	Beaumont Traction Co. (Rock River Construction Co.).....	Jan. 1, 1907	Dec. 31, 1907	5.00	6.64	50,000	50,000
4	Cedarburg, Milwaukee, Port Washington.....	Milwaukee Northern Ry. Co.....	Oct. 28, 1907	Dec. 31, 1907	32.90	32.90	1,000,000	1,000,000
5	Eau Claire, Chippewa Falls.....	Chippewa Valley Railway, Light and Power Co.....	Jan. 1, 1907	Dec. 31, 1907	22.57	22.57	900,000	900,000
6	Fond du Lac, Oshkosh.....	Eastern Wisconsin Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	24.67	28.10	800,000	800,000
7	Green Bay, Kaukauna.....	Green Bay Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	40.80	40.80	1,000,000	1,000,000
8	Janesville.....	Janesville Street Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.09	5.09	50,000	50,000
9	Kenosha.....	Kenosha Electric Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	5.70	5.70	150,000	150,000
10	La Crosse.....	La Crosse City Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	14.06	14.06	600,000	302,300
11	La Crosse, Onalaska.....	La Crosse and Onalaska Street Ry. Co.....	Dec. 1, 1906	Nov. 30, 1907	2.67	2.67	50,000	25,000
12	Madison and suburbs.....	Southern Wisconsin Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	12.86	12.86	100,000	50,000
13	Manitowoc, Two Rivers.....	Manitowoc and Northern Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	8.84	8.84	100,000	100,000
14	Merrill.....	Merrill Railway and Lighting Co.....	Jan. 1, 1907	Dec. 31, 1907	1.55	1.55	102,000	102,000
15	Milwaukee.....	Milwaukee Electric Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	126.95	126.95	24,500,000	13,900,000
16	Milwaukee, Racine, Kenosha, Whitefish Bay, Waukesha, Oconomowoc, Mukwonago, East Troy.....	Milwaukee Light, Heat and Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	183.06	183.06	10,000,000	10,000,000

¹ Includes electric-light plant. This company has also a floating debt.

² This company has also a floating debt.

³ Includes electric-light plant and permanent or other investments. This company has also a floating debt.

⁴ Amount apportioned to railway department.

⁵ Stock not all outstanding the entire year.

⁶ Includes permanent or other investments. This company has also a floating debt.

⁷ Includes 28.85 miles in Idaho.

⁸ Dividends paid on \$500,000 only.

⁹ This road was operated under lease from July 1 to December 31, 1907, by Northwestern Gas and Electric Co.

¹⁰ Includes 3.61 miles in Oregon.

¹¹ Includes 1 mile not operated, and 59.09 miles lying outside of state, but exclusive of 2 miles in state owned by an outside company. Total operated in state, 207.73 miles.

¹² Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$2,480,732.

¹³ Includes 0.77 miles in Virginia.

¹⁴ Includes 6.87 miles in Kentucky and 9.17 miles in Ohio.

¹⁵ Includes 1 mile owned but not operated.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization out- standing.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$165,000	\$165,000	4	\$0,000					\$100,000	\$90,000	5	¹ \$225,000	\$50,906	4
100,000	100,000										100,000	57,143	5
1,750,000	1,750,000							2,000,000	300,000	5	² 2,050,000	130,159	6
7,500,000	5,000,000			\$5,000,000	\$5,000,000	6	\$300,000	30,000,000	7,500,000	5	³ 17,500,000	112,840	7
1,000,000	1,000,000			250,000	250,000			390,000	390,000	5	⁴ 1,040,000	84,105	8
⁴ 2,934,900	⁴ 1,467,900	7	⁵ 94,267					⁶ 587,000	⁶ 470,000	5	⁷ 1,937,900	20,142	9
10,000,000	9,733,900			10,000,000	4,521,000	5	⁸ 91,940	15,000,000	4,216,000	5	⁹ 18,470,900	63,131	10
2,000,000	1,250,000			1,000,000	250,000			2,000,000	500,000	5	2,000,000	122,540	11
3,500,000	3,301,200			3,000,000	425,000	6	¹⁰ 30,000	5,500,000	4,180,000	5	¹¹ 8,112,200	131,756	12
2,000,000	2,000,000							1,500,000	1,800,000	5	¹² 3,500,000	33,480	13
500,000	300,000			100,000	50,000	6	3,000	500,000	300,000	5	650,000	30,765	14
12,578,333	10,924,075		26,400					14,633,333	10,406,500		21,330,575	¹³ 70,732	
100,000	110,000							500,000	182,500	6	¹⁴ 292,500	75,974	1
500,000	500,000							2,000,000	875,000	5	¹⁵ 1,375,000	123,318	2
2,000,000	1,800,000							2,500,000	1,340,000	5	¹⁶ 3,140,000	74,022	3
2,000,000	2,000,000							1,825,000	1,725,000	5, 6	¹⁷ 3,725,000	115,468	4
100,000	100,000							125,000	22,000	6	¹⁸ 132,000	66,000	5
¹⁸ 333,333	¹⁸ 206,800							¹⁹ 333,333	¹⁹ 255,000	5	²⁰ 471,800	85,122	6
50,000	50,000								50,000				6a
25,000	25,000							50,000	50,000	6	75,000	28,630	7
10,000	10,000										²¹ 10,000	4,167	8
300,000	1,000							300,000	300,000	6	²² 301,000	25,021	9
500,000	440,000	6	26,400					1,000,000	670,000	5, 6	²³ 1,110,000	32,840	10
100,000	²⁴ 159,575										²⁴ 159,575	19,947	11
1,000,000	444,000										²⁵ 444,000	41,437	12
2,000,000	1,847,700							2,500,000	2,500,000	5, 6	²⁶ 4,347,700		13
500,000	²⁷ 230,000							500,000			²⁷ 230,000	97,024	13a
500,000	500,000							500,000	50,000	5	550,000		13b
2,000,000	2,000,000							2,000,000	2,000,000	5	²⁸ 4,000,000	140,351	14
500,000	500,000							500,000	417,000	5	²⁹ 917,000	53,501	15
35,957,000	25,264,400		785,854	4,600,000	4,000,000		272,333	51,887,000	32,208,250		62,072,650	³⁰ 71,326	
1,000,000	699,400							3,000,000	1,365,000	5, 6	³¹ 2,004,400	106,434	1
300,000	200,000							150,000	130,000	5	³² 330,000	48,529	2
50,000	50,000							70,000	70,000	5	³³ 120,000	21,429	3
1,000,000	1,000,000							2,500,000	2,500,000	5	3,500,000	106,383	4
800,000	800,000			100,000	100,000	7	³⁴ 2,333	650,000	650,000	5	³⁴ 1,550,000	68,475	5
500,000	500,000							1,500,000	924,500	5	³⁵ 1,424,500	57,742	6
1,000,000	1,000,000							1,000,000	800,750	5, 6	³⁶ 1,800,750	44,136	7
50,000	50,000							75,000	75,000	6	125,000	24,558	8
150,000	150,000	10	25,000					500,000	500,000	5	650,000	114,035	9
500,000	302,500	8	³⁷ 20,257					175,000	130,000	6	438,500	29,891	10
50,000	38,000	5	1,000								38,000	14,232	11
100,000	50,000							2,000,000	1,185,000	5	³⁸ 1,235,000	98,034	12
100,000	100,000							150,000	118,000	5	218,000	24,061	13
102,000	102,000	4	4,080					75,000	75,000	5	³⁹ 177,000	114,194	14
20,000,000	9,000,000	6	540,000	4,500,000	4,500,000	6	270,000	29,000,000	12,000,000	41, 5	⁴⁰ 25,500,000	200,806	15
10,000,000	10,000,000	2	200,000					10,000,000	10,000,000	5	⁴¹ 20,000,000	109,254	16

³⁵ Amount apportioned to railway and light departments.³⁶ Includes 1.30 miles in Ohio.³⁷ Includes 12.05 miles in Ohio.³⁸ Includes electric-light plant.³⁹ Includes 0.50 mile in Ohio.⁴⁰ Cash investment; stock not yet issued.⁴¹ Includes 19.94 miles in Ohio.⁴² Entire trackage (7.34 miles) in Ohio; includes 4.34 miles not leased to Wheeling Traction Co., but operated by that company for Wheeling and Western Ry. Co.⁴³ Only \$10,000 stock issued; balance, \$220,000, is floating debt.⁴⁴ Entire trackage (1.85 miles) in Ohio.⁴⁵ Includes electric-light plant and permanent or other investments.⁴⁶ Exclusive of 84.88 miles to state owned by outside companies. Total operated in state, 675.53 miles.⁴⁷ Exclusive of permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc., amounting to \$19,944,046.⁴⁸ Includes permanent or other investments.⁴⁹ Dividends for four months only.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—NAME, LOCATION, LENGTH OF TRACK, CAPITAL

Number.	STATE AND LOCATION.	Name of company.	PERIOD COVERED BY REPORT.		MILES OF TRACK.		CAPITAL STOCK.	
			From--	To--	Owned.	Operated.	Total par value.	
							Authorized.	Outstanding.
	WISCONSIN—Continued.							
17	Oshkosh, Neenah, Omro.....	Winnebago Traction Co.....	Jan. 1, 1907	Dec. 31, 1907	40.10	40.10	\$650,000	\$650,000
	Racine.....	Chicago and Milwaukee Electric R. R. Co. (See Illinois.)						
18	Sheboygan, Plymouth.....	Sheboygan Light, Power and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	25.48	25.48	400,000	400,000
	Walworth.....	Chicago, Harvard and Geneva Lake Ry. Co. (See Illinois.)						
19	Waupaca and suburbs.....	Waupaca Electric Light and Ry. Co.....	Jan. 1, 1907	Dec. 31, 1907	4.95	4.95	125,000	75,000
20	Wausau, Schofield.....	Wausau Street R. R. Co.....	June 1, 1907	Dec. 31, 1907	5.82	5.82	120,000	96,800
	OUTLYING DISTRICTS.				43.83		1,946,400	1,846,800
	HAWAII.							
	Total for territory.				26.11		1,250,000	1,150,000
1	Honolulu.....	Honolulu Rapid Transit and Land Co.	Jan. 1, 1907	Dec. 31, 1907	26.11	26.11	1,250,000	1,150,000
	PORTO RICO.							
	Total.....				17.72		696,400	696,400
1	Mavaguez.....	Tramway Stock Co.....	Jan. 1, 1907	Dec. 31, 1907	3.13	3.13	46,400	46,400
2	Ponce.....	Ponce Railway and Light Co.....	Jan. 1, 1907	Dec. 31, 1907	4.72	4.72	50,000	50,000
3	San Juan, Rio Piedras.....	San Juan Light and Transit Co.....	Jan. 1, 1907	Dec. 31, 1907	9.87	9.87	600,000	600,000

¹ This company has also a floating debt.

² Includes electric light plant. This company has also a floating debt.

³ Includes electric-light plant.

STOCK, AND FUNDED DEBT, BY COMPANIES: 1907—Continued.

CAPITAL STOCK—continued.								FUNDED DEBT.			Total capital- ization outstanding.	Capital- ization per mile of track owned.	Number.
Common.				Preferred.				Amount authorized.	Amount out- standing.	Rates of inter- est, per cent.			
Par value.		Dividends.		Par value.		Dividends.							
Authorized.	Outstanding.	Rate per cent.	Amount.	Authorized.	Outstanding.	Rate per cent.	Amount.						
\$650,000	\$650,000							\$1,000,000	\$655,000	5	\$1,305,000	\$32,544	17
400,000	400,000							1,000,000	1,000,000	5	\$1,400,000	54,945	18
125,000	75,000							42,000	24,000	6	\$100,000	20,202	19
120,000	95,800	8	\$4,617								95,800	16,032	20
1,595,400	1,495,400		24,000	\$350,000	\$350,000		\$21,000	2,448,785	1,604,785		3,451,186	\$78,740	
900,000	800,000		24,000	350,000	350,000		21,000	1,000,000	670,000	6	1,820,000	\$49,705	
900,000	800,000	3	24,000	350,000	350,000	6	21,000	1,000,000	670,000	6	\$1,820,000	\$49,705	1
695,400	695,400							1,448,785	934,785		1,631,186	\$2,053	
45,400	45,400							3,926	3,926		50,326	\$1,079	1
50,000	50,000		(6)					750,000	250,000	9	\$300,000	\$3,552	2
600,000	600,000							694,800	690,800	4,6	\$1,280,800	\$29,773	3

* Stock not all outstanding the entire year.

* Includes permanent or other investments, such as securities of other electric railways, treasury stocks and bonds, gas plants, etc.

* Net income turned over to holding company.

TABLE 184. ROADBED, TRACK, AND ELECTRIC

		TRACK—CHARACTER AND LENGTH IN MILES.														
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Stations and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
UNITED STATES.....		34,403.56	25,547.19	6,938.68	1,917.69	32,501.71		1,765.74	136.11	33,966.40	350.05	87.11	27,490.65	6,922.91	998.31	1,820.06
ALABAMA.																
Total for state.....		291.60	214.73	51.14	25.79	280.06	Steam.	11.00		291.60			291.16	.50		11.25
1	Anniston Electric and Gas.....	11.00	10.50		.50	11.00				11.00			11.00			.50
2	Birmingham Railway, Light and Power.....	133.00	89.00	31.00	13.00	133.00				133.00			133.00			5.00
3	Alabama City, Gadsden and Attalla.....	8.00	7.30		.70	8.00				8.00			8.00			
4	Huntsville Railway, Light and Power.....	4.62	4.50		.12	4.62				4.62			4.62			
5	Mobile Light and Railroad.....	58.19	40.74	12.00	5.45	58.19				58.19			58.19			5.00
6	Montgomery Traction.....	37.95	30.30	6.14	1.51	37.95				37.95			37.95			
7	North Alabama Traction.....	7.24	6.91		.33	7.24				7.24			7.24			
8	Selma Street and Suburban.....	8.16	6.98		1.18	8.16				8.16			8.16			.75
9	Sheffield Co.....	12.50	11.50		1.00	12.50				12.50			12.00	.50		
10	Birmingham and Gulf Railway and Navigation.....	11.00	7.00	2.00	2.00		Steam.	11.00		11.00			11.00			
ARIZONA.																
Total for territory.....		30.75	28.42	1.00	1.33	30.75				30.75			30.75			
1	Douglas Street Railway.....	10.00	9.95		.05	10.00				10.00			10.00			
2	Phoenix Railway.....	14.00	12.00	1.00	1.00	14.00				14.00			14.00			
3	Prescott and Mt. Union.....	2.25	2.22		.03	2.25				2.25			2.25			
4	Tucson Rapid Transit.....	4.50	4.25		.25	4.50				4.50			4.50			
ARKANSAS.																
Total for state.....		87.39	63.45	19.38	4.36	90.41			.98	87.39			87.39			3.50
1	Citizens Electric.....	3.00	2.09		.31	3.00				3.00			3.00			
2	Fort Smith Light and Traction.....	17.46	12.47	4.79	.20	17.46				17.46			17.46			1.00
3	Hot Springs Street Railway.....	13.06	6.65	6.00	.41	13.06				13.06			13.06			
4	Little Rock Railway and Electric.....	32.15	21.11	8.68	2.36	32.15				32.15			32.15			1.50
5	Citizens Light and Transit.....	8.75	8.00		.75	8.75				8.75			8.75			1.00
6	Sulphur Rock Railway.....	.98	.87	.11		.98			.98	.98			.98			
7	Texarkana Gas and Electric.....	9.45	9.16		.29	9.45				9.45			9.45			
8	Walnut Ridge and Hoxie.....	2.54	2.50		.04	2.54				2.54			2.54			
CALIFORNIA.																
Total for state.....		2,013.49	1,264.10	638.81	110.58	1,830.29		419.74	4.46	2,013.49			2,002.81	10.68	257.70	205.77
1	Santa Catalina Island Co. Power, Transit and Light.....	.18	.18				Cable	.18		.18			.18			
2	Northern Electric.....	112.54	107.79		4.75	9.80	3d rail	102.74		112.54			112.54			42.14
3	Coronado Railroad.....	2.99	2.76		.23	2.99				2.99			2.99			
4	Humboldt Transit.....	13.04	11.27		1.77	13.04				13.04			13.04			2.43
5	Fresno Traction.....	11.93	10.03		1.00	11.93				11.93			11.93			
6	Nevada County Traction.....	5.50	5.40		.10	5.50				5.50			5.50			
7	Los Angeles Electric Incline.....	.14	.07	.07			Cable	.14		.14			.14			
8	Observation Tower Co.....	.06	.03	.03			Cable	.06		.06			.06			
9	Los Angeles Railway.....	212.93	104.00	101.50	7.34	212.93				212.93			212.93			30.46
10	Pacific Electric.....	201.92	105.65	82.13	14.14	452.09	Cable	1.17	1.00	454.26			201.92	(*)	1925.31	
11	Los Angeles Pacific.....	167.57	88.98	68.50	10.09	167.57				167.57			167.57		5.86	4.51
12	Los Angeles Interurban.....	193.91	198.84	119.21	21.06	86.77				86.77			339.11			69.40
13	Monterey and Pacific Grove.....	6.50	6.00		.50	6.50				6.50			6.50			
14	Vallejo, Benicia and Napa Valley.....	16.64	16.29		.35	16.64				16.64			16.64			
15	Oakland Traction.....	165.10	96.32	62.37	5.41	165.10			.96	165.10			165.10			3.03
16	San Francisco, Oakland and San Jose.....	22.32	11.30	7.48	3.64	22.32				22.32			22.32			1.74
17	Ontario and San Antonio Heights.....	8.20	8.00		.20	8.20				8.20			8.20			1.50
18	Santa Clara Interurban.....	2.65	2.27	.28	.10	2.65				2.65			2.65			
19	El Paso de Robles Street.....	2.50	2.50						2.50	2.50			2.50			
20	Petaluma and Santa Rosa.....	30.56	31.60		4.96	36.56				36.56			36.56			.34
21	Los Angeles and Redondo.....	84.31	43.95	31.61	8.77	84.31				84.31			84.31			1.52
22	East Shore and Suburban.....	15.00	14.00		1.00	15.00				15.00			15.00			1.50
23	Riverside and Arlington.....	12.41	9.93	1.55	.93	12.41				12.41			12.41			.68
24	Sacramento Electric Gas and Railway.....	30.22	19.11	10.79	1.29	30.22				30.22			30.22			1.32
25	San Bernardino Valley Traction.....	42.50	39.75	2.25	.50	42.50				42.50			42.50			7.00

* Includes miles of track as follows: Conduit-trolley, 322.79; third-rail, 1,200.78; gas-electric, 22.50; storage-battery, 3; street-cable, 52.75; inclined-cable, 8.96; steam, 105.06; gas-electric, 40.99.

† Exclusive of Connecticut and Massachusetts.

‡ 130.18 miles of construction supported by structures other than poles.

§ 2.34 mile of construction supported by structures, etc.

|| Leased from steam railroad.

¶ Includes miles of track as follows: Inclined-cable, 1.55; street-cable, 33.49; and third-rail, 114.70.

‡ 17.48 miles of construction supported by structures, etc.

• Inclined-cable.

CONSTRUCTION, BY COMPANIES: 1907.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-RAIL CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.
On private right of way.		Weight of rails per yard.		Style of rail.	Protected.		Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.				
Owned by company.	Not owned by company.	Within city limits.	Outside city limits.					Maximum.	Minimum.	Total.	Span wire.			Slide bracket.				Center pole.
10,230.57	741.27	17,467.21	13,208.35				28.98	3,000	2,580	25,060.29	14,098.16	10,173.53	793.60	3,773.62	21,156.19		891.54
96.10	1.00	183.73	107.93					63	49	209.24	178.25	30.30	.60	.25	208.75		
1.50		9.00	2.00	73	30	Girder, T, full groove.		2	1	10.50	6.50	4.00		.25	10.25	42	1
70.00		63.00	70.00	89	60	Girder, T, half groove, full groove.		20	32	80.00	73.00	16.00			80.00	53	2
3.30		4.70	3.30	40	35	T			6	7.30	4.30	3.00			7.30	52	3
	.25	2.50	2.12	60	60	T			2	4.50	4.50				4.50	52	4
6.87		40.47	17.72	90	60	T, girder		10		40.74	38.44	3.30	.00		40.74	52	5
8.29		28.06	8.29	114	60	Groove, girder, T.		21		20.30	29.55	.75			30.30	52	6
.14	.25	7.24		60	60	T			2	7.24	6.91	.33			7.00	52	7
2.00	.50	12.00	.50	50	40	T			3	8.16	5.65	2.51			8.16	53	8
4.00		7.00	4.00	70	56	T			1	11.50	11.00	.50			11.50	52	9
																	10
8.00		22.75	8.00					4	1	29.75	16.75	13.00		.25	29.50		
8.00		4.00	6.00	90	35	T				10.00	4.00	6.00			10.00	52	1
2.00		12.00	2.00	40	25	T			1	13.00	7.00	6.00		.25	12.75	50	2
		2.25		40	40	T				2.25	1.25	1.00			2.25	63	3
		4.50		40	25	T		4		4.50	4.50				4.50	52	4
.63	.29	80.41	6.95					8	4	62.65	54.92	6.25	1.48	2.22	60.43		
		3.00		56	56	T				2.69		2.69			2.69	52	1
	.29	13.85	3.61	70	60	T		2	2	12.47	10.40	1.29	.78	.78	11.69	48	2
		11.73	1.33	89	35	T				6.65	5.95		.70		6.65	63	3
		32.15		76	65	Girder, T		1		21.11	21.11			.94	20.17	52	4
		8.75		90	40	Girder, T		1	1	8.00	8.00			.50	7.50	40	5
.43		.43	.55	24	24	T											6
		7.96	1.49	60	60	T		4		9.19	9.19				9.19	42	7
		2.54		90	90	T			1	2.54	.27	2.27			2.54	42	8
684.02	32.82	1,243.01	770.48					102	122	1,176.07	724.10	221.44	230.53	1,176.04	1,078.45		1.00
.18			.14	35	35	T											1
		7.90		56	40	T, girder			3	7.60	7.60				7.60	53	2
98.91		13.63	98.91	60	60	T		4		9.40	8.46	1.34			9.80	40	3
		2.99		45	45	T				2.99	1.28	1.71			2.99	56	4
		13.04		60	45	T				11.27	9.77	1.50			11.27	33	5
		7.18	4.75	62	30	T		1	2	11.00	6.25	4.75			11.00	45	6
3.30		2.20	3.30	70	70	T				5.50		5.50			5.50	65	7
		.14		16	16	T											8
		.06		16	16	T											9
25.19		177.12	35.81	72	35	T		24		110.82	95.00	.95	14.87	.10	110.39	55	10
315.08		232.81	221.45	100	40	T		12	42	246.08	107.47	25.74	112.47		110.28	50	11
68.40	2.14	104.39	63.18	75	18	T		2	2	108.28	13.10	43.46	51.72		101.61	50	12
33.82		68.79	19.90	100	40	T		4	4	51.76	27.38	19.00	5.38		149.26	50	13
		6.50		60	40	T				6.00	6.00				6.00	45	14
5.34		3.09	13.55	60	60	T			3	16.64	3.00	13.64			16.64	44	15
3.19		122.90	43.20	75	60	T, girder		20	9	100.33	87.00	13.33		104.59	13.33	48	16
2.12		22.32		70	70	T		1	1	13.68	10.58		3.10	10.58	3.10	48	17
	1.00	7.30	1.00	30	30	T			3	8.00	5.00	3.00			8.00	50	18
		2.05		91	60	T				2.36	2.36				2.36	54	19
		2.50		21	21	T											20
31.31		6.00	29.90	70	70	T			5	36.56	36.56			1.00	35.56	58	21
48.32		11.51	72.82	70	48	T			3	48.06	48.57		36.49		46.06	55	22
		8.00	7.00	65	45	T		1	2	14.50	4.50	10.00			14.50	50	23
		12.41		60	60	T			5	9.93	9.93				14.50	50	24
		30.22		87	30	T, girder, full groove.		2	6	18.78	17.45	1.33			18.78	52	25
8.50		16.00	20.50	60	45	T			7	40.25	16.25	20.50	3.50		40.25	44	26

* See "Operated under trackage rights" column.

† Leased from Los Angeles Interurban Ry. Co.

‡ 1.50 miles of construction supported by buildings.

§ 7.27 miles of construction supported by buildings.

|| Includes 232.34 miles leased to and operated by Pacific Electric Ry.

¶ 2.50 miles of construction supported by buildings.

** 2.41 miles of construction supported by buildings.

*** 4 miles of construction supported by trees.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																	
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Sur-face.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Con-structed and opened for operation during the year.	
			First.	Second.			Kind.	Miles.									
CALIFORNIA—Continued.																	
27	San Diego Electric.....	35.14	24.45	10.00	.62	35.14				35.14			35.14			8.73	
28	South Park and East Side.....	3.56	3.30		.26	3.56				3.56			3.56			.85	
29	Geary Street, Park and Ocean.....	6.93	3.46	3.46	.01		Cable.	6.93		6.93			6.93				
30	California Street Cable.....	10.86	5.43	5.39	.10		Cable.	10.86		10.86			10.86				
31	Pasadena and Ferris.....	9.01	4.92	4.08	.01	9.01				9.01			9.01				
32	United Railroads of San Francisco.....	263.32	187.37	111.75	14.20	247.62	Cable.	15.70		263.32			263.32			3.50	
33	San Jose Railway.....	15.36	12.39	2.47	.50	15.36				15.36			15.36				
34	San Jose and Santa Clara County.....	35.19	20.37	7.93	.89	35.19				35.19			35.19			2.04	
35	San Jose-Los Gatos Interurban.....	40.09	39.09		1.00	40.09				40.09			40.09			7.25	
36	Santa Barbara Consolidated.....	7.50	6.75		.75	7.50				7.50			7.50				
37	Union Traction.....	14.78	12.26	2.02	.50	14.78				14.78			14.78				
38	South San Francisco Railroad and Power.....	4.40	4.00		.40	4.40				4.40			4.40				
39	Stockton Electric.....	13.00	12.50		.50	13.00				13.00			13.00				
40	Central California Traction.....	27.38	21.53	3.77	2.08	15.42	3d rail.	11.90		27.38			27.38			15.83	
41	Pacific Railroad and Steamship.....	5.33	5.00		.33	5.33				5.33			5.33				
COLORADO.																	
Total for state.....		317.37	205.36	88.75	22.21	317.37				317.37			317.37		2.18	19.16	
1	Boulder Electric Light and Power.....	5.30	5.00		.30	5.30				5.30			5.30				
2	Colorado Springs and Interurban.....	39.84	24.83	14.01	1.00	39.84				39.84			39.84				
3	Colorado Springs and Cripple Creek.....	18.42	16.95		1.47	18.42				18.42			18.42				
4	Denver City Tramway.....	174.48	95.30	64.10	15.08	174.48				174.48			174.48			14.65	
5	Denver and Inter-Mountain.....	5.50	5.00		.50	5.50				5.50			5.50				
6	Denver and Northwestern.....	24.04	21.52		2.52	24.04				24.04			24.04	(1)	12.18		
7	Durango Railway and Realty.....	2.39	2.28		.11	2.39				2.39			2.39				
8	Denver and South Platte.....	4.35	4.25		.10	4.35				4.35			4.35			4.35	
9	Manitou Electric Railway and Casino.....	.73	.65		.08	.73				.73			.73				
10	Pueblo and Suburban Traction and Lighting.....	29.27	17.78	10.64	.85	29.27				29.27			29.27			.14	
11	Trinidad Electric.....	13.06	12.80		.26	13.06				13.06			13.06				
CONNECTICUT.																	
Total for state.....		781.15	619.20	129.19	32.76	781.15				781.15			593.34	217.81	4.30	24.62	
1	Bristol and Plainville Tramway.....	13.74	12.87		.87	13.74				13.74			13.74			1.33	
2	Danbury and Bethel Street Railway.....	14.88	11.79	2.12	.97	14.88				14.88			14.88			3.15	
3	Hartford and Springfield Street Railway.....	48.10	44.95		3.15	48.10				48.10			48.10			1.50	
4	Groton and Stonington Street Railway.....	20.66	19.76		.90	20.66				20.66			20.66				
5	Farmington Street Railway.....	10.80	9.70		1.10	10.80				10.80			10.80		4.30		
6	New York, New Haven and Hartford Railroad.....	628.81	479.61	127.07	22.13	628.81				628.81			411.00	217.81		18.54	
7	New London and East Lyme Street Railway.....	11.14	11.00		.14	11.14				11.14			11.14				
8	Norwich and Westerly Railway.....	24.15	21.60		2.55	24.15				24.15			24.15				
9	New York, New Haven and Hartford Railroad (New Canaan branch).....	8.87	7.92		.95	18.87				8.87			8.87				
DELAWARE.																	
Total for state.....		95.93	82.45	11.24	2.24	95.93				95.93			84.32	11.61		.86	
1	Odessa and Middletown Railway.....	3.99	3.99			3.99				3.99			3.99				
2	Peoples Railway.....	33.38	28.50	4.50	.38	33.38				33.38			33.38				
3	Wilmington City Railway.....	45.11	36.96	6.74	1.41	45.11				45.11			33.50	11.61		.86	
4	Wilmington, New Castle and Southern Railway.....	13.45	13.00		.45	13.45				13.45			12.45				

¹ Operated also by steam.

² See "Operated under trackage rights" column.

³ Leased from Denver City Tramway Co.

⁴ This distinction not practicable for one large company.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.							Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.							Miles of street occupied by under-ground conduits for mains or feeders.	Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.		Style of rail.		Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.	Poles to the mile, number.		
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
	2.38	32.76	2.38	60	30	T.....		6	24.43	23.43		1.00		24.43	45	27		
		3.56		68	60	T.....			3.56	3.56				3.56	42	28		
		6.93		72	72	T.....										29		
		10.86		38	38	Girder.....										30		
		9.01		60	60	T.....			4.93	4.93			4.93		50	31		
21.00		224.00	39.32	141	35	Girder, T. groove.	14	2	128.05	118.05	8.00	2.00	75.04	53.01	50	32		
		10.84	4.52	42	30	Half groove, T.	3		12.84	10.84	2.00			12.84	51	33		
1.50		13.28	21.91	114	35	T. girder.....	2		26.40	22.53	3.87		2.98	23.42	56	34		
	23.30	3.79	34.30	114	60	Girder, T.....	3		40.09	11.06	29.00			40.09	53	35		
		7.50		60	40	T.....	1	1	7.50	8.00	1.50			7.50	50	36		
2.50		11.50	3.28	70	45	T.....		4	12.41	8.91	3.50			12.41	42	37		
	4.00	2.00	2.40	60	60	T.....	1		4.00					4.00	50	38		
		9.50	3.50	114	60	T. groove.....	2	1	13.00	13.00				13.00	52	39		
18.00		14.34	13.00	75	65	T.....	1	9	15.42	12.00	3.42			15.42	44	40		
4.33		1.00	4.33	50	50	T.....		2	8.25	.85	4.40			5.25	70	41		
51.93	4.26	265.29	52.08				19	6	207.64	190.34	8.30		6.98	200.76				
15		5.30		45	45	T.....		1	5.00	5.00				5.00	58	1		
3.00		26.84	3.00	65	48	T.....	3		25.53	25.53				25.53	52	2		
15.92		2.50	15.92	75	60	T.....			16.95					16.95	40	3		
4.82	1.53	172.30		80	30	T.....	8		95.30	95.30			4.54	90.76	57	4		
25		5.50		75	40	T.....	1	1	5.00	5.00				5.00	52	5		
19.92	2.72	4.60	21.62	80	65	T.....			21.52	21.52				21.52	53	6		
		1.75	.64	30	30	T.....		1	2.28	2.28				2.28	52	7		
1.00		2.00	2.35	70	60	T.....	2		4.25	4.25				4.25	44	8		
.33		.73		45	45	T.....			.65	.65				.65	55	9		
.13		29.27		75	35	T.....	2	2	18.36	18.36			2.34	16.02	60	10		
6.41		4.50	8.55	65	65	T.....	2	1	12.80	4.50	8.30			12.80	52	11		
38.65	5.00	(*)	(*)				96	5	711.06	378.68	330.54	1.84	*72.96	*634.73		1.00		
.70		8.00	8.74	60	56	T.....	2		12.87	5.08	7.79			12.87	50	1		
.20		5.50	9.38	80	48	T. girder.....	4		11.79	11.79				11.79	45	2		
6.02		4.00	44.10	70	56	T.....			48.10	2.20	45.90			48.10	54	3		
	5.00	6.00	14.06	70	70	T.....	4		20.66	.95	19.71			20.66	52	4		
2.03		3.61	7.19	70	70	T.....	1		10.80	2.00	8.80			10.80	45	5		
(*)	(*)	(*)	(*)	125	60	T, flat, girder, tribby.	85	5	568.32	348.84	215.64	1.84	*72.86	*491.47	65	1.00		
		.70	10.38	70	70	T.....			11.00	1.00	10.00			11.00	55	7		
21.02		.58	23.67	70	70	T.....	2		21.60	5.00	16.60		.10	21.50	60	8		
8.65		3.67	5.00	74	60	T.....			7.92	1.82	6.10			*6.54	42	9		
20.74	4.00	57.27	38.66				6	2	83.20	68.70	14.50			83.20				
2.46	1.50	1.50	2.49	58	58	T.....			3.99	3.99				3.99	50	1		
4.00	2.00	21.00	12.38	90	60	Girder, T, full groove.	1		28.50	28.25	.25			28.50	52	2		
5.25		30.32	14.79	96	54	Girder, T.....	3	1	87.71	32.46	5.25			37.71	61	2		
9.00		4.45	9.00	70	58	Girder, T.....	2	1	13.00	4.00	9.00			13.00	82	4		

*3.37 miles of construction supported by structures, etc.

*Not reported.

*1.90 miles of construction supported by buildings, etc.

*1.38 miles of construction supported by bridges.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRACK—CHARACTER AND LENGTH IN MILES.														
		Total owned and leased.	Main track.		Siding and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-right.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
DISTRICT OF COLUMBIA.																
	Total for district.....	176.03	90.11	78.85	7.07	83.17	Cond't	92.86		176.03			176.03		6.70	
1	Anacostia and Potomac River.....	20.72	10.94	8.92	.86	3.98	Cond't	16.74		20.72			20.72		4.80	
2	Brightwood Railway.....	12.11	5.95	5.92	.24	11.65	Cond't	.40		12.11			12.11			
3	Georgetown and Tennallytown.....	8.69	4.31	4.16	.22	8.00				8.69			8.69			
4	Capital Traction.....	44.27	22.14	22.13		11.00	Cond't	33.27		44.27			44.27		.67	
5	Washington Railway and Electric.....	56.71	29.18	23.26	4.27	26.68	Cond't	30.03		56.71			56.71		.41	
6	City and Suburban of Washington.....	33.53	17.59	14.46	1.44	21.17	Cond't	12.36		33.53			33.53		.82	
FLORIDA.																
	Total for state.....	118.26	109.82	6.72	4.72	117.13		1.13		118.26			117.26	1.00		15.27
1	Amelia Beach Co.....	2.20	2.00		.20	2.20				2.20			1.20	1.00		
2	Fort Meade Street Railway.....	1.13	1.13					1.13		1.13			1.13			
3	Jacksonville Electric.....	22.25	18.12	2.78	1.25	22.25				22.25			22.25			
4	North Jacksonville Street Railway, Town and Improvement.....	6.50	6.40		.10	6.50				6.50			6.50			
5	Key West Electric.....	4.95	4.78		.17	4.95				4.95			4.95			
6	Pensacola Electric.....	20.39	18.40	1.02	.97	20.39				20.39			20.39			
7	St. Johns Light and Power.....	7.08	7.00		.08	7.08				7.08			7.08			7.08
8	St. Petersburg and Gulf.....	9.25	9.00		.25	9.25				9.25			9.25			
9	Tampa and Sulphur Springs Traction.....	8.21	6.00	1.88	.33	8.21				8.21			8.21			8.21
10	Tampa Electric.....	36.32	33.99	1.04	1.29	36.32				36.32			36.32			
GEORGIA.																
	Total for state.....	354.18	204.29	78.50	11.33	351.28		2.90		354.18			354.18		3.01	10.90
1	Athens Electric Railway.....	6.55	6.50		.05	6.55				6.55			6.55			
2	Georgia Railway and Electric.....	162.10	110.40	47.70	4.00	162.10				162.10			162.10			10.40
3	Atlanta Northern Railway.....	16.00	15.40		.60	16.00				16.00			16.00		3.01	
4	Augusta Railway and Electric.....	31.90	16.23	13.29	2.58	31.90				31.90			31.90			
5	Columbus Railroad.....	26.48	25.00	1.90	1.52	26.48				26.48			26.48			.50
6	Covington and Oxford.....	2.25	2.10		.15				2.25	2.25			2.25			
7	Gainesville Electric Railway.....	6.01	5.90		.11	6.01				6.01			6.01			
8	Macon Railway and Light.....	32.67	29.35	2.65	.67	32.67				32.67			32.67			
9	Rome Railway and Light.....	8.80	8.60		.20	8.80				8.80			8.80			
10	Savannah Electric.....	57.19	42.66	12.90	1.57	57.19				57.19			57.19			
11	Valdosta Street Railway.....	3.58	3.50		.08	3.58				3.58			3.58			
12	Washington Street Railway.....	.65	.65							.65			.65			
IDAHO.																
	Total for state.....	44.24	43.00		1.24	44.24				44.24			44.24			
1	Boise Railroad.....	9.74	9.50		.24	9.74				9.74			9.74			
2	Boise and Interurban Railway.....	34.50	33.50		1.00	34.50				34.50			34.50			
ILLINOIS.																
	Total for state.....	2,776.46	1,944.60	673.15	158.62	2,523.38		251.63	1.55	2,650.09	125.77	.60	2,302.95	473.51	96.60	196.05
1	Alton, Granite and St. Louis.....	72.02	61.20	10.82	.99	72.02				72.02			72.02		2.96	5.50
2	Alton, Jacksonville and Peoria.....	5.50	5.10		.40	5.50				5.50			5.50			
3	Fruit Growers Refrigerating and Power.....	4.50	3.50		1.00	4.50				4.50			4.50			
4	Aurora, DeKalb and Rockford.....	28.63	27.00		1.63		(*)	28.63		28.63			28.63			27.00
5	Belleville City Railway.....	3.75	3.75			3.75				3.75			3.75			
6	Bloomington and Normal.....	18.30	17.35		.95	18.30				18.30			18.30			.94
7	Peoria, Bloomington and Champaign.....	38.60	37.70		.90	38.60				38.60			38.60		.94	
8	Caro Electric and Traction.....	10.00	8.42	1.08	.50	10.00				10.00			10.00			1.18
9	Illinois Central Electric Railway.....	5.86	5.66		.20		(*)	5.86		5.86			5.86			.50
10	Central and Central City.....	3.00	2.90		.10	3.00				3.00			3.00			
11	Urbana and Champaign.....	8.00	5.90	1.40	.70	8.00				8.00			8.00			
12	St. Louis, Decatur and Champaign.....	51.56	48.50		3.06	51.56				51.56			51.56		2.10	51.56
13	Danville, Urbana and Champaign.....	67.40	58.50		8.90	67.40				67.40			67.40		2.70	
14	Chicago City Railway.....	241.49	108.60	106.12	26.77	241.49				241.49			239.02	2.47	2.24	2.92
15	Chicago Union Traction.....	326.74	157.09	149.26	30.29	326.14	Cable	.40		326.14		.60	1.50	325.24		
16	Chicago Consolidated Traction.....	184.93	95.49	87.06	2.47	184.93				184.93			180.99	14.94	31.95	
17	Calumet Electric Street Railway.....	75.54	36.71	35.57	3.21	75.54				75.54			75.54		1.47	

* 3.87 miles of construction supported by buildings.

* 0.14 mile of construction supported by buildings.

* 2.66 miles of construction supported by buildings.

* 1.07 miles of construction supported by buildings.

* Leased from steam railroad.

* Includes 5 miles leased to steam railroad.

CONSTRUCTION, BY COMPANIES: 1907—Continued:

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER		ELECTRIC-LINE CONSTRUCTION, MILES.							Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.			
Owned by company.	Not owned by company.			Maximum.	Minimum.						Total.	Span wire.	Side bracket.						Center pole.
37.69		155.70	20.23				9	1	43.99	18.73		25.26	17.73	122.26		36.71		
.66		20.72		96	62	Girder, T, groove.	3	1	2.41	2.41			.57	1.84	48	9.10	1	
.69		12.11		83	45	Girder, T, groove.			5.96			5.96	.22	3.74	56		2	
.14		8.69		96	67	Girder, T, groove, trilby.			4.51	1.71		2.80	11.36	12.90	62		3	
		39.95	4.32	104	50	T, full groove, half groove.	1		5.50			5.50	.50	5.00	42	11.25	4	
25.55		50.28	6.43	96	55	T, full groove, trilby.	4		14.61	14.61			11.13	10.80	57	7.08	5	
10.65		23.95	9.58	95	62	T, full groove.	1		11.00			11.00	13.91	16.02	62	9.28	6	
15.20	16.96	78.67	39.59				19	29	106.02	89.00	17.02			106.02				
1.00	1.00	1.00	1.20	80	80	T.		1	2.00	2.00				2.00	48		1	
		1.13		30	25	T.											2	
1.90	.75	19.60	2.66	70	40	T.	14	12	18.12	18.12				18.12	52		3	
		6.50		70	56	T.	2	2	6.40	6.40				6.40	48		4	
		4.95		65	80	T.			4.78	4.01	.77			4.78	42		5	
3.00	3.00	13.42	6.97	60	40	T.		4	18.40	18.40				18.40	53		6	
5.00		2.07	5.00	46	36	T, girder.			7.00	6.73	.25			7.00	30		7	
	2.50	3.00	6.25	70	54	T, girder.		1	9.00	3.00	6.00			9.00	44		8	
	4.71	.21	8.00	70	60	T.	1		6.33	6.33				6.33	52		9	
.80	5.00	26.80	9.52	60	40	T.	2	9	33.99	23.99	10.00			33.99	53		10	
73.78	1.00	270.64	83.54				29	36	292.04	206.69	55.55	.80	6.20	255.84		7.00		
		6.00	.55	70	40	T, girder.			6.50	6.50				6.50	40		1	
17.00		141.00	21.10	109	60	Half groove, girder, T.	16	3	112.11	112.11			6.20	105.91	52	7.00	2	
13.50		5.41	10.59	80	70	T.	4	2	15.40	15.40				15.40	60		3	
		31.90		100	30	T.	1	9	16.23	16.23				16.23	44		4	
3.22		17.48	9.00	70	40	T.	2	15	21.48	3.00	18.48			21.48	50		5	
		2.25		30	30	T.											6	
3.01		3.00	3.01	70	60	T.		1	6.01	3.00	3.01			6.01	75		7	
11.50		21.50	11.17	70	39	T, trilby.	1	4	29.35	20.95	8.40			29.35	50		8	
	1.00	7.80	1.00	60	56	T.	3		8.80	4.00	4.80	.80		8.80	50		9	
23.93		31.69	25.60	70	53	T.	2	1	42.66	21.00	21.66			42.66	52		10	
1.62		1.96	1.62	45	45	T.			3.50	3.50				3.50	50		11	
		.65		45	45	T.											12	
.30	29.50	14.44	29.80				1	2	44.00	14.50	29.50			44.00				
		9.74		70	35	T.	1		9.50	9.50				9.50			1	
.30	29.50	4.70	29.80	72	60	Girder, T.		2	34.50	5.00	29.50			34.50			2	
1,039.49	9.81	1,720.92	1,055.54				30	381	1,848.68	1,157.51	699.16	22.01	1326.71	1,491.29		33.15		
16.00		50.00	16.02	80	48	T, girder.	7	13	61.20	61.20				61.20	48		1	
3.00		3.20	2.30	85	60	T.	1		5.10	2.00	3.10			5.10	48		2	
		4.00	.50	60	60	T.			3.50	3.50				3.50	44		3	
25.00		2.00	26.63	70	70	T.		3									4	
		3.75		70	60	T.		1	3.75	3.75				3.75	52		5	
1.04		16.42	1.98	70	45	Girder, T.	6	2	18.30	17.80		.50	2.00	16.80	53		6	
31.92		5.79	32.81	70	70	T.	8	1	37.70	3.00	34.70			37.70	40		7	
.23		10.00		96	40	Girder, T.	1	2	8.42	4.96		.71	.71	7.71	48		8	
4.00		1.66	4.20	80	40	Girder.	1										9	
		3.00		60	60	T.			3.00	3.00				3.00	50		10	
	.05	8.00		70	45	T.	2	3	5.90	5.65	.25		.25	5.65	52		11	
44.68		5.92	45.64	70	70	T.	2	1	48.50	3.00	45.50			48.50	40		12	
53.50		7.70	59.70	70	56	T.	3	5	58.50	38.50	20.00			58.50	50		13	
.19	29	236.55	4.94	129	63	Girder, T, full groove.	66	9	110.45	110.45			88.50	21.95	48	28.47	14	
20.29		826.74		129	80	Girder.	30	83	177.08	171.62	3.42	2.04	134.97		57	2.68	15	
2.47		184.03		90	60	Girder, T.	32	22	97.87	90.33	.75	6.79	195.03	19.45	46		16	
4.20		75.54		100	70	Girder.	1	32	36.76	30.53	1.19	5.04	2.12	34.62	50		17	

7 Includes miles of track as follows: Third-rail, 213.44; storage-battery, 3; street-cable, 0.60; gasoline-motor, 34.49.

8 30.68 miles of construction supported by structures, etc.

9 Gasoline motor.

10 Was being converted to overhead-trolley system.

11 27.71 miles of construction supported by elevated structures and buildings.

12 1.97 miles of construction supported by elevated structures and buildings.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

Number.		STATE AND ABBREVIATED NAME OF COMPANY.	TRACK—CHARACTER AND LENGTH IN MILES.													Owned.	Leased.	Operated under track-age rights.	Con-structed and opened for operation during the year.
			Total owned and leased.	Main track.		Sid-ings and turn-outs.	Over-head trolley.	Other mechan-ical traction.		Animal.	Sur-face.	Elev-ated.	Sub-ways and tun-nels.						
				First.	Second.			Kind.	Miles.										
ILLINOIS—Continued.																			
18	Chicago Electric Traction.....	33.40	19.45	13.35	1.00	33.80				33.80				33.80					
19	Southern Street Railway.....	21.00	10.00	10.00	1.00	21.00				21.00				21.00		3.75			
20	General Electric Railway.....	3.00	2.12	.88			Storage-car	3.00		3.00				3.00					
21	Suburban Railroad.....	33.30	18.05	15.65	1.00	33.30				33.30				31.30	12.00				
22	Northwestern Elevated Railroad	29.57	8.02	119.06	2.49		3d rail.	29.57		29.57				29.57	(4)	1.80	6.16		
23	South Side Elevated Railroad.....	37.77	12.13	117.33	8.31		3d rail.	37.77		37.77				37.77		1.98	14.65		
24	Metropolitan West Side Elevated	44.92	19.20	222.72	3.00		3d rail.	41.92		1.13	43.79			44.54	.38	8.60	1.00		
25	South Chicago City Railway.....	34.64	18.43	15.29	.92	34.64				34.64				34.64					
26	Chicago and Oak Park Elev-ated Railroad.....	22.57	10.91	10.12	1.54	6.59	3d rail.	16.18		7.90	14.64			22.57		1.08			
27	Chicago and Milwaukee.....	132.86	65.39	61.11	6.30	132.86				132.86				97.76	35.10				
28	Chicago and Joliet.....	82.95	48.67	30.44	3.84	82.95				82.95				41.32	41.63				
29	Danville Street Railway and Light	19.87	15.02	4.00	.25	19.87				19.87				15.37	4.50		0.30		
30	Decatur Railway and Light.....	13.00	11.83		1.17	13.00				13.00				13.00					
31	Illinois Central Traction.....	42.90	40.00		2.90	42.90				42.90				42.90		2.60			
32	Chicago, Bloomington and De-catur.....	47.90	45.30		2.60	47.90				47.90				47.90		1.70			
33	DeKalb-Sycamore and Inter-urban.....	7.83	7.00		.23	7.83				7.83				7.83					
34	Stirling, Dixon and Eastern.....	17.69	16.29	.32	.08	17.69				17.69				17.69					
35	St. Louis and Belleville.....	15.00	9.65		5.35	15.00				15.00				15.00					
36	East St. Louis and Suburban.....	111.27	79.29	25.95	6.05	111.27				111.27				73.44	*37.83		1.89		
37	Elgin and Belvidere.....	34.92	33.65		1.27	34.92				34.92				34.92		1.70			
38	Freeport Railway, Light and Power.....	8.50	8.00		.50	8.50				8.50				8.50					
39	Galesburg Railway and Light	20.25	19.75		.50	20.25				20.25				20.25					
40	Peoples Traction.....	14.00	12.50		1.50	14.00				14.00				14.00					
41	Citizens Railway.....	5.25	4.34		.91	5.25				5.25				5.25			5.25		
42	Keokuk and Western Illinois.....	7.71	7.71			7.71				7.71				7.71	*6.14	.76			
43	Chicago, Harvard and Geneva Lake.....	11.62	11.00		.62	11.62				11.62				11.62					
44	Chicago and Southern Traction	42.58	42.00		.58	42.58				42.58				42.58			34.00		
45	Sangamon Valley Railway.....	1.50	1.50			1.50				1.50				1.50			1.50		
46	St. Louis and North Eastern.....	58.32	55.29		3.12	58.32				58.32				58.32		6.30			
47	Jacksonville Railway and Light	7.00	6.70		.30	7.00				7.00				7.00			.50		
48	Joliet, Plainfield and Aurora.....	19.15	19.19		.96	19.15				19.15				19.15			4.08		
49	Kankakee Electric Railway.....	10.38	9.38		1.00	10.38				10.38				10.38		1.38			
50	North Kankakee Electric Light and Railway.....	4.33	4.20		.13	4.33				4.33				4.33					
51	Galesburg and Kewanee.....	13.93	12.93		1.00	13.93				13.93				13.93			8.93		
52	Illinois Valley Railway.....	60.02	58.30		2.26	60.02				60.02				60.02			18.72		
53	Lincoln Highway and Light.....	8.50	8.00		.50	8.50				8.50				8.50					
54	Coal Belt Electric Railway.....	16.69	15.33		1.36	16.69				16.69				14.79	11.00				
55	Mattison City Railway.....	14.50	14.00		.50	14.50				14.50				14.50					
56	Moline, East Moline and Water-town.....	7.85	7.10		.75	7.85				7.85				7.85					
57	Rock Island Southern Railroad.....	17.50	16.00		1.50	17.50				17.50				17.50		2.50			
58	Murphy Street Railway.....	1.55	1.50		.05				1.55	1.55				1.55					
59	Northern Illinois Light and Traction.....	8.55	8.20		.35	8.55				8.55				8.55			.60		
60	Paris Traction.....	4.00	3.25		.75	4.00				4.00				4.00			4.00		
61	Peoria Railway.....	52.49	49.76		2.73	52.49				52.49				52.49					
62	Peoria Railway Terminal.....	9.00	8.00		1.00	9.00				9.00				9.00		5.00			
63	Bloomington, Pontiac and Joliet	19.27	18.51		.46	19.27				19.27				19.27					
64	Quincy Horse Railway.....	18.00	13.13	4.19	.68	18.00				18.00				18.00					
65	Rockford and Interurban.....	101.05	94.56	3.00	2.49	101.05				101.05				101.05		.75	2.50		
66	Springfield Consolidated.....	32.83	29.25		4.58	32.83				32.83				32.83			.75		
67	St. Louis and Springfield.....	61.60	59.10		2.50	61.60				61.60				61.60		.90			
68	Springfield and North Eastern.....	30.40	29.10		1.30	30.40				30.40				30.40		2.90			
69	Illinois Light and Traction.....	6.50	6.00		.50	6.50				6.50				6.50					
70	Aurora, Elgin and Chicago.....	148.46	119.34	28.12	1.00	62.96	3d rail.	85.50		148.46				148.46		6.00			
INDIANA.																			
Total for state.....		1,932.93	1,714.61	126.13	92.19	1,928.68	Steam.	3.25	1.00	1,932.93				1,159.69	773.25	94.54	172.68		
1	Indiana Union Traction.....	371.67	338.02	9.14	24.51	371.67				371.67				64.11	307.56	6.45			
2	Angola Railway and Power.....	4.10	4.00		.10	4.10				4.10				4.10					
3	Marion, Bluffton and Eastern.....	32.37	31.57		.80	32.37				32.37				32.37					
4	Brownstown and Ewing.....	1.00	1.00			1.00				1.00				1.00					
5	Central Indiana Lighting.....	7.00	6.50		.50	7.00				7.00				7.00		1.25			
6	Indianapolis, Columbus and Southern.....	60.25	58.52		1.73	60.25				60.25				60.25		3.85	19.01		
7	Fort Wayne and Springfield.....	20.55	19.80		1.25	20.55				20.55				20.55		2.30	19.80		
8	Evansville and Southern In-diana.....	61.73	51.47	9.01	1.25	61.73				61.73				61.73			7.92		
9	Evansville Railways.....	42.47	41.26		1.21	42.47				42.47				42.47		13.23			

¹ Leased from steam railroad.

² Second, third, and fourth main track.

³ See "Operated under trackage rights" column.

⁴ Leased from an operating company.

⁵ Second and third main track.

⁶ 0.50 mile of construction supported by structures.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAILROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Miles of street occupied by underground conduits for mains or feeders.	Number.		
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.			Wooden poles.	Poles to the mile, number.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
		33.80		80	60	Girder, T.	2	5	20.45	20.45			2.00	18.45	52	18		
		21.00		70	70	Girder.	0	4	10.00	10.00			7.00	3.00	52	19		
		3.00		70	70	Full groove.	1									20		
6.66	2.64	33.30		80	65	T.		4	10.65	15.90		.75	1.75	14.90	45	21		
24.57		29.57		80	80	T.	1									22		
9.66	2.47	37.77		90	80	T.			30	25	25	(*)	(*)			23		
44.92		44.92		80	80	T.										24		
		34.64		85	58	Girder, T. full groove.	11	12	18.43	17.68		.75	1.57	16.80	42	25		
5.60		18.64	3.93	80	70	T.	2		3.50	.79		2.80	3.50		52	26		
112.60	1.61	50.00	82.86	90	60	T. girder.	11	1	71.75	65.27	6.48		3.40	08.35	52	27		
11.87		23.76	50.19	100	60	T. girder.	10	14	48.67	33.78	12.20	2.63		48.67	53	28		
		16.37		70	56	T.	3	2	15.62	15.62				15.62	52	29		
		9.49	3.51	70	50	T.	6		11.83	11.83			.83	11.00	52	30		
36.94		5.66	37.24	70	70	T.		4	40.00	5.00	35.00			40.00	50	31		
40.53		6.47	41.43	70	70	T.	2		45.30	18.30	27.00			45.30	50	32		
4.23		3.60	4.23	60	60	T.		3	7.60	2.40	5.20		1.00	6.00	50	33		
12.44		5.25	12.44	80	60	Girder, T.	1		16.20	3.85	12.44			16.20	40	34		
15.00			15.00	65	65	T.	1	1	13.18	.37	12.81			13.18	48	35		
26.76		62.25	48.92	96	45	Girder, T. half groove, full groove.	13	11	79.36	41.65	37.61		4.25	75.01	48	36		
32.92		3.60	31.42	70	70	T.	1		23.65	1.27	32.38			33.65	52	37		
		8.60		70	56	T.	3	1	8.00	8.00				8.00	60	38		
.25	.50	15.75	4.50	60	56	T.	3	5	19.75	18.75	1.00			19.75	53	39		
.50		3.00	11.00	60	60	T.		3	14.00	3.00	11.00			14.00	48	40		
		5.25		70	35	T. girder.	5	10	4.34	4.34				4.34	52	41		
5.57	.57	1.57	6.14	60	56	T.		2	7.71	1.57	6.14			7.71	48	42		
1.00		1.25	10.37	65	56	T.		1	11.61	1.25	10.36			11.61	53	43		
42.58		12.65	29.93	80	80	T.	2	1	42.00	.58	41.42			42.00	53	44		
		1.50		65	52	T.			1.50	1.50				1.50	52	45		
48.21		13.29	45.03	70	70	T.	10	1	55.30	5.20	50.00			55.30	70	46		
		4.00	2.00	70	45	T.	1	1	7.00	6.75	.25		3.50	3.50	50	47		
8.97		4.47	14.68	60	60	T.	3		18.19	1.94	16.25			18.19	52	48		
.33	.03	9.00	1.38	80	40	Girder, T.		4	9.38	7.20	2.18		.47	8.91	36	49		
.25		3.75	.58	70	40	T.		3	4.20	2.20	2.00			4.20	42	50		
7.18		6.75	7.18	80	70	Girder, full groove, T.			12.93	6.15	6.78			12.93	53	51		
41.42		19.20	41.42	60	60	T.	1	4	58.36	33.36	23.00			58.36	53	52		
		8.50		40	35	T.	1	2	8.10	4.10	2.00			8.10	45	53		
13.63		3.52	13.17	75	56	T.		6	16.38	4.85	11.53			16.38	52	54		
12.25		2.00	12.50	70	50	T.	2	2	14.00	1.50	12.50			14.00	52	55		
.64		7.21	.64	80	50	Girder, T.	2	4	7.85	5.08	2.82			7.85	40	56		
16.00		2.25	15.25	70	70	T.	1		17.50		17.50			17.50	52	57		
		1.55		60	40	T.	1	1								58		
		4.78	3.77	65	30	T.	3		7.20	6.03	1.17			6.70	52	59		
		2.00	2.00	62	02	T.	1	1	3.25	3.25				3.25	48	60		
.56		52.49		107	45	Girder, T. half groove.	3	1	49.76	47.76	2.00			49.76	52	61		
9.00		1.38	7.62	70	70	T.	5		8.00	1.00	7.00			8.00	53	62		
17.47		2.40	18.97	70	70	T.	2		19.27	1.70	17.57			19.27	53	63		
	.50	17.50	.50	60	45	T.	2	1	13.13	12.13	1.00			13.13	52	64		
72.31		29.49	71.56	90	40	Girder, T.	14	10	94.56	62.96	31.60		2.00	92.56	52	65		
1.63	1.15	32.83		97	40	Girder, T. half groove.	1	15	28.25	28.25				28.25	52	66		
52.80		7.20	54.40	70	54	T.	4	5	50.10	7.10	52.00			50.10	50	67		
27.61		2.50	27.90	70	70	T.	2	2	30.40	.40	30.00			30.40	46	68		
		6.50		60	30	Girder, T.	6	5	6.00	6.50	.50			6.00	42	69		
68.00		32.00	116.46	95	40	T. girder.	17	3	62.96	49.46	12.50		1.96	61.00	63	70		
1,276.46	19.48	563.29	1,349.64				158	188	1,741.18	487.28	1,234.01	10.40	100.71	1,634.47				
281.80		90.04	280.71	91	35	T.	21	90	340.77	133.91	206.86	1.02	1.50	339.27	53	1		
3.30		.70	3.40	56	56	T.	1		4.00	.70	3.30			4.00	53	2		
29.17		2.40	29.97	70	70	T.	3	1	31.57	3.00	28.57		.86	30.71	52	3		
		1.00		56	56	T.										4		
		5.50	1.50	60	30	T.	2	4	7.00	6.00	1.00			7.00	50	5		
54.60		3.90	56.25	70	60	T.	5	4	58.52	3.64	54.76	.12	.27	58.25	53	6		
18.55	.25	.50	20.05	80	70	T.	2		19.30	.25	17.80	1.25		19.30	52	7		
28.70		33.03	28.70	70	40	T.	5	8	52.72	12.40	40.32		13.48	39.24	60	8		
30.34	3.92	1.50	40.97	70	60	T.	3	3	41.26	2.06	39.21			41.26	52	9		

1 Includes 2.22 miles leased from steam railroad.

2 Includes 2.16 miles leased from steam railroad and 1.73 miles leased from bridge company.

3 Leased from steam-railroad and bridge companies.

4 0.30 mile of construction supported by bridges.

5 Operated also by steam.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Siding and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Sur-face.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Con-structed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
INDIANA—Continued.																
10	Evansville Suburban and Newburgh	27.80	27.55		.25	24.55	Steam.	3.25		27.80			27.80			
11	Fort Wayne and Wabash Valley	211.73	181.80	21.59	8.34	211.73				211.73			148.53	63.20		38.00
12	French Lick and West Baden	1.09	1.09			1.09				1.09			1.09			
13	Hammond, Whiting and East Chicago.	25.94	16.45	7.08	2.43	25.94				25.94			25.94			
14	Indianapolis Traction and Terminal.	133.28	72.37	54.65	6.06	133.28				133.28			16.18	117.10	2.85	1.30
15	Terre Haute, Indianapolis and Eastern.	304.97	346.79		18.18	304.97				304.97			146.43	218.54	19.66	25.62
16	Indianapolis and Cincinnati	112.07	101.36	3.58	7.13	112.07				112.07			61.90	50.17	6.02	
17	Indianapolis, Crawfordsville and Western.	44.25	43.00		1.25	44.25				44.25			44.25		2.00	44.25
18	Toledo and Chicago Interurban	42.75	42.00		.75	42.75				42.75			42.75		1.14	
19	Kokomo, Marion and Western	40.00	38.00	.50	1.50	40.00				40.00			40.00			
20	Chicago-New York Electric Air Line.	13.50	12.00		1.50	13.50				13.50			13.50			13.50
21	Lebanon-Thornton Traction	9.39	9.34		.05	9.39				9.39			9.39		.66	
22	Madison Light and Railway	4.08	4.00		.08	4.08				4.08			4.08			
23	Louisville and Southern Indiana.	41.73	32.15	6.32	3.26	41.73				41.73			30.55	11.18	5.60	
24	Louisville and Northern.	23.17	21.14	1.47	.88	23.17				23.17			17.67	15.50	8.22	33
25	Winona Interurban Railway (Peru division)	9.67	9.47		.20	9.67				9.67			9.67			
26	Muncie and Portland	31.25	30.59		.66	31.25				31.25			31.25		1.11	
27	Indianapolis and Louisville	41.79	40.92		.87	41.79				41.79			41.79		14.05	
28	Chicago, South Bend and Northern Indiana.	79.48	67.15	8.51	3.82	79.48				79.48			79.48			
29	Southern Michigan Railway.	34.78	32.37	.90	1.51	34.78				34.78			34.78		5.39	
30	Vincennes Traction and Light	8.10	4.50	3.50	.10	8.10				8.10			8.10			2.40
31	Washington Street Railway	2.95	2.90		.15	2.95				2.95			2.95			
32	Winona Interurban Railway	24.10	23.20		.90	24.10				24.10			24.10		2.00	
33	Winona and Warsaw	3.92	2.93		.99	3.92				3.92			3.92			
IOWA.																
Total for state		630.84	526.03	65.70	45.21	619.45	Steam.	24.39		630.84			578.62	61.22	35.04	59.97
1	Albia Interurban	3.20	3.10		.10	3.20				3.20			3.20			3.20
2	Boone Electric	2.00	2.00			2.00				2.00			2.00			
3	Fort Dodge, Des Moines and Southern.	98.18	90.90		7.28	98.18				98.18			60.48	37.70	4.80	53.20
4	Boone Suburban	4.20	4.20			4.20				4.20			4.20			
5	Peoples Gas and Electric.	17.00	14.00	2.50	.50	17.00				17.00			17.00			1.00
6	Cedar Rapids and Marion City.	19.94	15.55	2.28	2.01	19.94				19.94			19.94			
7	Cedar Rapids and Iowa City.	30.50	28.40		2.04	30.50				30.50			29.67	.83		
8	Centerville Light and Traction.	1.00	1.50		.10	1.00				1.00			1.00			
9	Clinton Street Railway	15.50	10.00	4.00	1.50	15.50				15.50			15.50			1.50
10	Iowa and Illinois Railway	36.75	33.07		3.68	36.75				36.75			36.75		3.63	
11	Tri-City Railway	69.00	48.68	19.15	.97	69.00				69.00			69.00		5.44	
12	Des Moines City Railway	80.15	50.59	21.56	8.00	80.15				80.15			80.15		7.11	1.07
13	Interurban Railway	72.65	64.56		8.07	72.65				72.65			72.65			
14	Union Electric.	17.46	14.00	3.21	.25	17.46				17.46			17.46			
15	Fort Madison Street Railway	4.00	3.88		.12	4.00				4.00			4.00			
16	Keokuk Electric Railway and Power.	6.50	6.50			6.50				6.50			6.50			
17	Marshalltown Light, Power and Railway.	3.88	3.50		.38	3.88				3.88			3.88			
18	Mason City and Clear Lake.	17.34	16.31		1.03	17.34				17.34			17.34			
19	Citizens Railway and Light.	12.00	10.61	1.00	.39	12.00				12.00			12.00			
20	Oskaloosa Traction and Light	7.24	7.10		.14	7.24				7.24			7.24		2.30	
21	Ottumwa Railway and Light.	11.70	11.00		.70	11.70				11.70			11.70			
22	Sauix City Traction.	46.00	32.60	12.00	2.00	46.00				46.00			46.00			
23	Tama and Toledo.	3.00	2.80		.10	3.00				3.00			3.00			
24	Waterloo, Cedar Falls and Northern.	60.05	54.20		5.85	60.05	Steam.	30.39		60.05			39.06	20.39	7.96	
KANSAS.																
Total for state		240.88	218.67	15.30	15.82	210.58		23.50	13.80	240.88			248.86	1.00		35.20
1	Arkansas City Street Railway	5.50	5.00		.50				5.50	5.50			5.50			
2	Atchison Railway, Light and Power.	9.00	8.00	.25	.75	9.00				9.00			9.00			
3	Fort Scott Gas and Electric	8.00	7.50		.50	8.00				8.00			8.00			
4	Grand Coal Belt Railway.	8.30	8.24		.06	8.30				8.30			8.30			8.30
5	Hutchinson Interurban.	5.93	4.49	1.09	.35	5.93				5.93			5.93			1.00
6	Union Traction	27.50	26.50		1.00	27.50				27.50			27.50			8.30
7	Iola Electric Railroad.	8.95	7.95		1.00	8.95				8.95			8.95		1.00	
8	Electric Railway, Light and Ice	5.61	5.31		.30	5.61				5.61			5.61			
9	Kansas City-Western Railway.	43.53	34.83	6.39	2.31	43.53				43.53			43.53			4.64
10	Joplin and Pittsburg	32.36	27.22	1.52	3.62	32.36				32.36			32.36			
11	Missouri and Kansas Interurban.	22.50	21.00		1.50		G a s	22.50		22.50			22.50			3.00
12	Kansas City and Olathe.	4.54	4.54			4.54	elec.			4.54			4.54			4.54
13	Salina Street and Interurban.	3.00	2.70		.30		(?)	3.00		3.00			3.00			1.50
14	Consolidated Street Railway.	2.05	2.02		.03					2.05			2.05			
15	Topeka Railway	34.59	25.60	6.14	2.85	34.59				34.59			34.59			4.40
16	Wichita Railroad and Light.	22.27	21.77		.50	22.27				22.27			22.27			2.00
17	Union Street Railway.	6.25	6.00		.25					6.25			6.25			

Includes 4.62 miles leased from steam railroad and 0.88 mile from bridge company.

Leased from steam railroad.

GENERAL TABLES.

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CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
25.40		2.40	25.40	70	70	T		1	1	24.55	2.00	22.55		.30	34.26	52	10	
124.06	4.78	79.54	132.19	80	56	T		10	4	181.80	36.80	140.00	5.00	19.00	162.80	53	11	
1.00		.09	1.00	80	60	T			2	1.09	1.09				1.09	55	12	
		25.94		80	58	T, girder		12	5	16.45	16.45				16.45	42	13	
4.07		125.79	7.49	117	60	Girder, T, full groove.		22	9	72.37	69.87		12.50	54.43	17.94	52	14	
253.96		58.06	308.91	70	56	T, girder		13	25	264.97	51.80	313.17		5.90	358.96	53	15	
107.37		4.70	107.37	72	60	T		3	6	105.01	3.58	101.43			105.01	53	16	
42.25		.75	43.50	85	70	T		4		43.00		42.00		.50	42.50	53	17	
37.07		5.68	37.07	70	70	T		3		42.00	3.50	38.50			42.00	40	18	
26.00		12.00	28.00	70	70	T		9	6	38.00	12.50	25.50		.75	37.25	53	19	
12.50		1.00	12.50	85	60	T		1		12.00	1.50	10.50			12.00	52	20	
9.05		1.00	8.39	60	60	T				9.34	.34	9.00			9.34	52	21	
		4.08		60	60	T		1		4.00	4.00				4.00	52	22	
10.25	1.16	25.62	6.11	90	60	T, girder		6		34.29	34.12		.17	2.28	32.01	53	23	
16.45	8.57	6.37	18.80	75	60	T, girder		3		21.50	4.78	16.83		3.47	18.12	58	24	
7.81		1.86	7.81	70	56	T				9.47	1.68	7.81		.38	9.09	53	25	
26.84		5.52	25.73	72	70	T			6	31.25	4.80	26.45			31.25	53	26	
38.87		2.00	39.79	75	75	T		3	1	40.92	2.00	38.92			40.92	60	27	
26.50		52.98	26.50	80	56	T		12	2	67.15	67.15			2.00	65.15	52	28	
31.03		3.75	31.03	70	70	T		8		32.37	5.69	26.68		1.50	30.67	53	29	
	.80	8.10		70	56	T		2	1	4.50	4.50				4.50	52	30	
		2.15	.90	50	35	T			1	2.80	2.80				2.80	55	31	
22.14		1.96	22.14	70	60	T		2		23.29	1.96	21.34			23.30	53	32	
1.46		2.46	1.46	70	60	T		1		2.92	2.46	1.46			3.92	53	33	
271.75	36.77	339.61	300.23					61	107	529.86	271.03	248.11	10.42	11.35	518.21			
2.00		1.20	2.00	70	60	T			2	3.10	1.10	2.00		2.00	1.10	42	1	
		2.00		40	40	T				2.00	2.00				2.00	52	2	
60.70	35.70	6.25	91.93	70	60	T		10	2	98.18		98.18		2.00	96.18	58	3	
3.20		1.00	3.20	45	45	T			3	4.20	1.00	3.20			4.20	52	4	
		17.00		65	45	T		2		14.00	14.00				14.00	60	5	
27.25		19.08	86	80	35	Girder, T		7	1	15.65	9.33	4.04	2.28	2.00	12.65	45	6	
		4.78	25.72	70	56	T		2	2	30.50	2.95	27.55		.45	30.05	52	7	
		1.60		75	75	T		1		1.60	1.50	.10		.10	1.50	50	8	
1.50		15.50		80	40	T			1	10.00	8.00	2.00			10.00	42	9	
33.07			30.75	70	70	T			3	33.32	3.50	29.82			33.32	65	10	
5.87		68.57	.43	90	45	Groove, T, girder		4	13	48.88	47.94	.94		.50	48.38	60	11	
25.85		80.15		85	35	Girder, T		6	51	51.59	39.59	10.00	2.00	1.00	50.59	52	12	
72.65		72.65		70	60	T			2	72.65	10.00	58.51	6.14		72.65	62	13	
1.65		14.00	3.46	72	52	Girder, T		1	3	14.00	14.00			1.00	13.00	50	14	
		4.00		65	40	T		1		3.88	3.88				3.88	52	15	
	.07	0.50		60	56	T		2	2	6.50	6.00	.50			6.50	45	16	
		3.88		70	45	T		1		3.50	3.50				3.50	50	17	
7.10		9.61	7.73	60	60	T		2	1	16.31	15.39	.92		.20	16.11	53	18	
		12.00		70	60	T		5	3	11.00	10.25	.75			11.00	70	19	
1.70		5.54	1.70	70	60	T		1	3	7.24	5.34	1.90			7.24	45	20	
		11.70		60	35	T		2	2	11.70	11.00	.70			11.70	55	21	
13.09		31.00	15.00	80	50	T		8	6	32.00	27.00	5.00		2.00	30.00	52	22	
		3.40		40	40	T			1	2.90	2.90				2.90	45	23	
26.21		21.15	38.90	72	56	T		6	6	34.86	30.86	4.00		.10	34.76	53	24	
96.02	1.65	144.19	105.69					28	60	184.06	90.72	83.19	4.15	3.46	180.60			
	.25	5.50		40	20	T		1	4	8.00	8.00				8.00	45	1	
		8.75	.25	60	45	T											2	
.50		7.50	.50	60	40	T		1		7.50	6.50	1.00			7.50	35	3	
7.67		.63	7.67	60	60	T			3	8.24	1.00	7.24			8.24	53	4	
		5.93		60	60	T		3		4.49	4.49				4.49	48	5	
19.00		8.50	19.00	70	60	T			7	26.50	8.50	18.00			26.50	58	6	
3.00	1.00	4.95	4.00	75	52	T			3	7.95	2.00	5.95			7.95	48	7	
		3.76	1.85	56	36	T		8	1	5.61	5.61				5.61	48	8	
22.05	.20	21.54	21.65	100	52	Girder, T		8	2	36.04	16.05	19.99	1.00	.20	35.84	52	9	
20.61		11.75	20.61	70	40	Girder, T		1	20	27.22	5.97	21.25		.53	26.59	55	10	
21.00		1.50	21.00	70	70	T		1									11	
.01		.01	4.53	70	60	T			2	4.54		4.54			4.54	80	12	
		3.00		40	35	T											13	
		1.30	.51	45	35	T											14	
2.18	.20	30.91	3.78	95	56	Girder, T		1	6	25.70	18.23	4.22	3.15	2.93	22.77	55	15	
		22.27		70	35	T		4	8	22.27	20.27	2.00			22.27	52	16	
		6.25		40	25	T, flat		2	4								17	

* Includes miles of track, as follows: Gas-electric, 22.50; gasoline-motor, 3.

* Gasoline motor.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

		TRACK CHARACTER AND LENGTH IN MILES.														
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Siding and turn-outs.	Over-head trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
KENTUCKY.																
Total for state.....		389.13	298.28	107.07	13.78	389.13				389.13			385.30	3.77	4.98	29.96
1	Bowling Green Railway.....	4.60	4.50		.10	4.60				4.60			4.60			
2	Cincinnati, Newport and Covington.....	66.70	37.41	27.35	1.94	66.70				66.70			62.93	73.77	2.38	
3	Henderson Traction.....	6.25	6.00		.25	6.25				6.25			6.25			
4	Lexington Railway.....	17.00	13.65	2.35	1.00	17.00				17.00			17.00			
5	Blue Grass Traction.....	31.50	31.00		.50	31.50				31.50			31.50		2.00	
6	Central Kentucky Traction.....	36.02	35.00		1.02	36.02				36.02			36.02		.50	15.49
7	Louisville Railway.....	163.11	93.99	76.37	5.75	163.11				163.11			163.11			3.15
8	Louisville and Eastern.....	23.82	22.72		1.10	23.82				23.82			23.82			8.80
9	Maysville Street Railroad.....	4.33	4.00		.33	4.33				4.33			4.33			
10	Owensboro City Railroad.....	14.50	13.00	1.00	.50	14.50				14.50			14.50			
11	Paducah Traction.....	16.99	15.70		1.23	16.99				16.99			16.99			1.98
12	Somerset Water, Light and Traction.....	3.02	3.00		.02	3.02				3.02			3.02			.75
13	Winchester Railway, Light and Ice.....	1.29	1.25		.04	1.29				1.29			1.29			
LOUISIANA.																
Total for state.....		238.52	164.75	64.78	11.96	238.52				238.52			119.24	119.28	4.61	8.03
1	Alexandria Electric Railway.....	5.00	4.45		.15	5.00				5.00			5.00			
2	Baton Rouge Electric and Gas.....	3.94	3.50		.44	3.94				3.94			3.94			
3	Lake Charles Street Railway.....	7.65	7.64		.01	7.65				7.65			7.65			
4	City of Monroe (municipal).....	8.75	8.50		.25	8.75				8.75			8.75			2.25
5	St. Charles Street Railroad.....	20.00	14.63	4.26	1.11	20.00				20.00			20.00		3.00	
6	Orleans Railroad.....	11.67	9.58	1.68	.41	11.67				11.67			11.67		.30	
7	New Orleans Railway and Light.....	119.28	78.21	36.73	6.34	119.28				119.28				119.28	.88	2.18
8	New Orleans and Carrollton.....	35.11	16.83	15.72	2.56	35.11				35.11			35.11			
9	New Orleans and Pontchartrain.....	8.62	4.67	3.80	.06	8.62				8.62			8.62		.28	
10	Algiers Railway and Lighting.....	4.50	4.25		.25	4.50				4.50			4.50			4.50
11	Shreveport Traction.....	14.00	11.10	2.50	.40	14.00				14.00			14.00			
MAINE.																
Total for state.....		424.06	387.26	16.79	20.01	421.06			3.00	424.06			424.06		3.50	3.58
1	Bangor Railway and Electric.....	62.52	56.04	2.67	3.81	62.52				62.52			62.52			
2	Hatfield and Saco.....	8.15	7.61		.54	8.15				8.15			8.15			
3	Portland and Brunswick.....	16.40	15.80		.60	16.40				16.40			16.40			
4	Cahoon Street Railway.....	7.10	7.00		.10	7.10				7.10			7.10			
5	Fairfield and Shawmut.....	3.20	3.10		.10	3.20				3.20			3.20			3.20
6	Benton and Fairfield.....	4.67	4.12		.55	4.67				4.67			4.67			
7	Freeburg Horse Railroad.....	3.00	3.00			3.00			3.00				3.00			
8	Lewiston, Augusta and Waterville.....	84.09	80.08	1.42	2.59	84.09			3.00	84.09			84.09			
9	Noxway and Paris.....	2.14	2.13		.01	2.14				2.14			2.14			
10	Portland Railroad.....	94.43	78.50	12.39	3.54	94.43				94.43			94.43			
11	Rockland, Thomaston and Camden.....	23.82	21.17	.31	2.34	23.82				23.82			23.82			.38
12	Rockland, South Thomaston and Oak Head.....	4.20	3.80		.40	4.20				4.20			4.20			
13	Atlantic Shore Line.....	77.91	74.91		4.00	77.91				77.91			77.91			
14	Somerset Traction.....	12.68	12.20		.48	12.68				12.68			12.68			
15	Andover and Turner.....	9.00	8.50		.50	9.00				9.00			9.00		3.50	
16	Waterville and Fairfield.....	5.00	4.90		.10	5.00				5.00			5.00			
17	Waterville and Oakland.....	5.75	5.40		.35	5.75				5.75			5.75			
MARYLAND.																
Total for state.....		536.18	330.12	185.55	20.51	536.18				534.78	1.40		525.76	10.42	2.50	12.74
1	United Railways.....	413.19	211.14	185.05	17.00	413.19				411.79	1.40		413.19			2.64
2	Cumberland Electric Railway.....	7.20	6.95		.25	7.20				7.20			7.20			
3	Cumberland and Westport.....	25.66	25.00		.66	25.66				25.66			25.66			
4	Frederick and Middletown.....	20.14	18.81		1.33	20.14				20.14			20.14		10.42	
5	Hagerstown and Boonstown.....	10.15	10.02		.13	10.15				10.15			10.15		2.00	
6	Hagerstown and Myersville.....	7.50	7.50			7.50				7.50			7.50			
7	Hagerstown and Northern.....	10.10	10.05		.05	10.10				10.10			10.10		.50	10.10
8	Hagerstown Railway.....	13.70	13.40		.30	13.70				13.70			13.70			
9	Baltimore and Bel Air.....	3.27	3.21		.06	3.27				3.27			3.27			
10	Kensington Railway.....	2.53	2.50		.03	2.53				2.53			2.53			
11	Washington, Berwyn and Laurel.....	9.00	9.00			9.00				9.00			9.00			
12	Washington and Rockville.....	10.83	9.75	.50	.58	10.83				10.83			10.83			
13	Washington, Woodside and Forest Glen.....	2.91	2.84		.07	2.91				2.91			2.91			

* 1.88 miles of construction supported by bridges.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.							Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.							Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.		Style of rail.		Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.				
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.						
119.49		270.31	118.82					58	62	272.06	168.24	93.36	8.46	119.44	120.74		4.00		
1.85		2.75	1.85	60	60	T.		1	1	4.60	2.75	1.85		4.60	4.00	52		1	
13.05		26.03	10.67	90	76	Girder, T. half groove.		9	10	38.24	29.78		8.46	119.14	117.22	53		2	
		5.50	.75	50	40	T.			3	6.25	4.75	1.50		6.25	50		3		
		17.00		65	60	T.		6	5	13.65	13.40	.23		13.65	52		4		
25.00		6.00	25.50	60	60	T.		1	1	31.00	6.00	25.00		31.00	52		5		
25.50		11.02	25.00	70	70	T.		3	2	35.00	8.02	26.98		35.00	52		6		
20.45		136.91	26.20	137	35	Girder, T. half groove, full groove.		26	13	80.96	76.37	4.62		80.99	52	4.00	7		
23.82		4.50	19.32	70	70	T.		1		23.82	1.10	22.72		23.82	52		8		
1.00		3.00	1.33	70	40	T.		1		4.00	1.00	3.00		4.00	59		9		
6.00		8.50	6.00	60	45	T.		1	0	14.50	8.00	6.50		14.50	52		10		
2.82		14.79	2.20	79	35	T.		7	1	15.76	12.94	2.82		15.46	52		11		
		3.02		60	60	T.				3.00	2.88	.12		3.00	50		12		
		1.29		75	75	T.		2		1.25	1.25			1.25	60		13		
11.58		236.52						42	26	162.56	133.49	15.62	13.55	34.22	128.34		1.32		
		5.00		60	60	T.		2		5.00	5.00			5.00	52		1		
		3.94		95	60	T.		2		3.50	3.50			3.50	53		2		
		7.65		60	60	T.		1	5	7.64	7.64			7.64	72		3		
		8.75		60	60	T.		6	6	8.50	4.50	4.00		8.50	44		4		
1.11		20.00		107	58	Girder, groove, T.		8	1	14.63	11.96	2.67		9.36	52		5		
.41		11.67		93	58	Girder, T.				9.58	6.99	2.59		4.03	46		6		
6.34		119.28		107	58	Girder, groove, T.		25		70.21	72.98	2.16	1.09	9.55	66.69	46	1.32	7	
2.50		35.11		107	70	Girder, groove, T.		4		16.83	6.94	1.42	8.47	11.28	5.55	46		8	
.00		8.62		100	80	T.		2		4.67		.68	3.90		4.67	46		9	
		4.50		90	75	Groove, T.			5	4.30	4.30			4.30	50		10		
1.40		14.00		80	60	T.			7	11.50	9.50	2.00		11.50	53		11		
66.48	1.31	176.36	247.70					42	15	306.32	51.14	344.68	.50	1.21	305.11				
	.40	24.50	26.02	90	35	Half groove, T.		3	2	56.04	12.00	44.04		56.04	50		1		
		8.15		90	50	Girder, T.		2		7.61	1.61	6.00		7.61	50		2		
5.50		10.90	5.50	60	60	T.		1	1	15.80	1.00	14.80		15.80	44		3		
.11		7.10		56	48	T.			2	7.00	1.25	5.75		7.00	52		4		
.10		3.20		70	70	T.			1	3.10	.10	3.00		3.10	50		5		
.02	.12	2.25	2.42	60	56	T.				4.67	.65	4.12		4.67	52		6		
		3.00		16	16	T.											7		
22.00	.50	31.83	52.26	95	40	Girder, T.		6		84.09	11.01	73.08		84.09	55		8		
		2.14		40	40	T.			2	2.13	1.00	1.07		2.13	52		9		
.50		29.84	64.50	90	60	Girder, T.		17		78.50	15.00	63.00	.50	78.00	52		10		
2.75	.04	23.82		60	50	T.		3	4	23.82	1.29	22.53	.21	23.61	48		11		
.75	.25	3.20	1.00	70	70	T.				3.80		3.80		3.80	50		12		
30.00		14.00	63.91	60	45	T.		6	2	77.91	4.00	73.91	.50	77.41	60		13		
.75		1.68	11.00	58	40	T.				12.30	.12	12.08		12.30	48		14		
		3.00	6.00	60	40	T.				9.00	9.00			9.00	65		15		
		5.00		90	35	Girder, T.		3	1	4.90	1.90	3.00		4.90	52		16		
3.00		2.75	3.00	60	60	T.				5.75	.25	5.50		5.75	52		17		
228.18	1.75	258.18	278.00					19	70	331.49	212.58	49.30	69.52	119.50	211.00		20.26		
150.00		234.42	178.77	128	40	Girder, T. half groove.		10	56	211.14	140.25	1.00	68.00	117.50	93.55	46	20.26	1	
	1.75	5.20	2.00	73	45	Girder, T.		3	1	6.95	6.95			6.95	35		2		
4.00		2.83	22.83	90	56	Girder, T.			7	25.62	25.00	.50	.12	25.62	59		3		
18.81		1.33	18.81	60	40	Girder, T.			2	18.81	5.15	13.66		16.81	50		4		
10.02			10.15	82	56	Girder, T.		1		10.02	10.02			10.02	52		5		
7.50			7.50	60	60	T.				7.50	7.50			7.50	52		6		
9.10		1.00	9.10	60	60	T. girder.		1	1	10.10	10.10			10.10	50		7		
9.00		4.70	9.00	68	56	Girder, T.		3	2	13.40	4.40	9.00		13.40	50		8		
3.21			3.27	60	60	T.				3.21	3.21			3.21	40		9		
2.25		.25	2.28	50	50	T. girder.			1	2.50		2.50		2.50	50		10		
8.50		7.50	8.50	80	80	T.				9.00		9.00		9.00	55		11		
2.88		7.95	2.88	70	62	T. groove.				10.33		9.83	.50	10.33	55		12		
2.91			2.91	70	70	T.		1		2.91		2.91		2.91	46		13		

* Leased from bridge companies.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.			Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.
			First.	Second.	Sidings and turn-outs.		Kind.	Miles.								
MASSACHUSETTS.																
	Total for state.....	2,985.95	2,278.12	443.73	165.00	2,967.23		119.02		2,862.40	16.70	7.75	2,339.88	540.97	71.40	27.58
1	Amesbury and Hampton.....	8.75	8.24		.41	8.75				8.75			8.75			
2	Lexington and Boston.....	32.73	27.56	2.46	2.69	32.73				32.73			32.30	4.37	.37	
3	Interstate Consolidated.....	22.78	21.58		1.20	22.78				22.78			22.78			
4	Lowell and Fitchburg.....	18.28	17.68		.60	18.28				18.28			18.28			4.98
5	Old Colony Street Railway.....	397.88	332.68	46.04	19.16	397.88				397.88			377.29	20.59		
6	Boston and Northern.....	524.60	422.90	80.63	21.04	524.60				524.60			479.33	45.27	9.45	
7	Boston Elevated Railway.....	437.09	207.75	177.01	52.33	417.90	3d rail.	19.19		412.64	16.70	7.75	42.10	1394.99	20.54	4.66
8	Blue Hill Street Railway.....	19.59	15.36	2.95	1.28	19.59				19.59			19.59		.18	
9	Berkshire Street Railway.....	70.94	68.41		2.50	70.94				70.94			70.94			
10	New York, New Haven and Hartford.....	17.13	6.96	6.92	3.25	16.70	Steam.	.43		17.13			17.13			
11	Concord, Maynard and Hudson.....	14.81	14.21		.60	14.81				14.81			14.81		.35	
12	Conway Electric Street Railway.....	6.43	5.91		.52	6.43				6.43			6.43			
13	Cottage City and Edgartown.....	6.95	6.45		.50	6.95				6.95			6.95	1.10		
14	Dedham and Franklin.....	9.45	9.08		.37	9.45				9.45			9.45			
15	Connecticut Valley Street Railway.....	47.30	45.41		1.89	47.30				47.30			47.30			
16	Providence and Fall River.....	12.53	11.98		.55	12.53				12.53			12.53			
17	Lowell and Boston.....	3.32	3.17		.15	3.32				3.32			3.32			
18	Dartmouth and Westport.....	18.05	9.29	8.65	.20	18.05				18.05			18.05		12.64	
19	Fitchburg and Leominster.....	40.70	33.09	5.31	1.67	40.70				40.70			40.70			
20	Boston and Worcester.....	79.06	47.33	29.21	2.52	79.06				79.06			79.06		.52	1.78
21	Gardner, Westminster and Fitchburg.....	16.28	15.32		.96	16.28				16.28			16.28			
22	Haverhill and Southern New Hampshire.....	8.19	7.89		.30	8.19				8.19			8.19		.06	
23	Haverhill and Plaistow.....	2.76	2.68		.08	2.76				2.76			2.76			
24	Haverhill and Amesbury.....	27.39	25.90		1.49	27.39				27.39			27.39		1.02	
25	Holyoke Street Railway.....	68.74	56.00	7.50	4.53	68.74				68.74			67.74	1.00		.49
26	Westborough and Hopkinton.....	6.43	6.37		.06	6.43				6.43			6.43			
27	Lawrence and Methuen.....	12.06	12.52		.44	12.06				12.06			12.06		.22	
28	Nahant and Lynn.....	6.04	5.96	2.36	.02	6.04				6.04			6.04			
29	Norfolk and Bristol.....	21.51	21.03		.48	21.51				21.51			21.51		.29	
30	Marlborough and Westborough.....	13.86	13.51		.35	13.86				13.86			13.86			
31	Lowell, Acton and Maynard.....	1.98	1.98			1.98				1.98			1.98			
32	Medford and Medway.....	11.25	11.01		.24	11.25				11.25			11.25			
33	Medford, Attleborough and Woonsocket.....	30.52	30.00		.52	30.52				30.52			30.52			
34	Millis and Uxbridge.....	35.91	33.69	.99	1.23	35.91				35.91			35.91		.02	
35	Natick and Cohasset.....	18.76	16.99	.94	.83	18.76				18.76			18.76			
36	Middlesex and Boston.....	15.90	12.96	1.72	1.22	15.90				15.90			15.90		.17	
37	Union Street Railway.....	31.88	25.68	4.37	1.83	31.88				31.88			31.88		.20	1.44
38	New Bedford and Onset.....	44.12	37.59	3.65	2.88	44.12				44.12			44.12			
39	Citizens Electric Street Railway.....	17.85	16.87		.98	17.85				17.85			17.85		.57	
40	Newton and Boston.....	11.49	10.72		.77	11.49				11.49			11.49	1.74	3.48	
41	Newton Street Railway.....	43.38	32.08	8.88	2.42	43.38				43.38			37.73	5.65	1.13	
42	Northampton Street Railway.....	26.57	24.37		2.20	26.57				26.57			26.57			
43	Norwood and Taunton.....	30.07	29.22		.85	30.07				30.07			30.07		.41	.20
44	Attol and Orange.....	7.13	6.86		.27	7.13				7.13			7.13			
45	Plattfield Electric.....	29.37	27.63	1.00	.74	29.37				29.37			29.37			
46	Plymouth and Sandwich.....	6.36	6.15		.21	6.36				6.36			6.36			
47	Brookton and Plymouth.....	24.05	22.09		1.96	24.05				24.05			24.05			
48	Norwood, Canton and Sharon.....	6.28	6.07		.21	6.28				6.28			6.28			
49	Shelburne Falls and Colrain.....	7.01	6.53		.48	7.01				7.01			7.01			
50	Springfield Street Railway.....	142.34	109.37	20.20	9.77	142.34				142.34			99.53	42.81		12.26
51	Bristol and Norfolk.....	6.32	6.20		.12	6.32				6.32			6.32		.38	
52	East Taunton Street Railway.....	10.70	10.52		.18	10.70				10.70			10.70		.72	
53	Taunton and Pawtucket.....	17.62	15.98	.47	1.17	17.62				17.62			17.62		1.16	.06
54	Templeton Street Railway.....	18.39	17.87		.52	18.39				18.39			18.39			
55	Uxbridge and Blackstone.....	9.80	9.60		.20	9.80				9.80			9.80			
56	Ware and Brookfield.....	12.12	11.71		.41	12.12				12.12			12.12			
57	Warren, Brookfield and Spencer.....	20.10	19.61		.49	20.10				20.10			20.10			
58	Western Massachusetts Street Railway.....	27.05	25.42	.34	1.29	27.05				27.05			27.05			
59	Linwood Street Railway.....	1.90	1.74		.16	1.90				1.90			.66	1.24		
60	Worcester Consolidated.....	167.20	136.44	27.25	3.51	167.20				167.20			158.35	8.84	.49	

¹ Includes miles of track, as follows: Third-rail, 19.19; steam, 0.43.

² This distinction not practicable for many companies.

³ 17.17 miles of construction supported by structures, etc.

⁴ Held under lease or contract.

⁵ Part is double-deck bracket construction.

⁶ Includes 26.26 miles leased to and operated by Boston Elevated.

GENERAL TABLES.

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CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.							Poles to the mile, number.	Miles of street occupied by under-ground conduits for mains or feeders.	Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.			
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
245.11	19.14	(1)	(2)				3.01	240	83	2,298.04	802.79	1,442.43	52.82	*282.77	*1,008.10		50.34	
.17		8.28	.17	90	00	T. girder				8.34	1.14	6.79	.41		8.34	65		1
.43		31.98	.75	70	00	Flat, girder, T.		1		32.73	.30	*32.43			32.73	50		2
4.88		2.00	16.28	95	60	T. girder		3		21.58	3.25	18.33			21.58	50		3
8.80		338.28	61.60	95	35	Girder, T. groove, half groove, flat.		17	3	17.68	.50	17.18			17.68	52		4
						Girder, T. half groove, full groove, flat.				332.68	119.27	213.15	.26	12.90	319.78	55	6.59	5
17.40		468.52	56.09	95	35	Girder, T. half groove, full groove, flat.		63	20	422.93	198.70	221.07	3.16	34.95	387.89	55		6
2.49	7.75	437.00		137	35	T. girder, half groove, full groove, flat, trillhy.	3.01	80	35	207.19	193.84	3.24	10.11	*139.03	*50.99	48	32.00	7
.84	1.58	17.35	2.24	108	60	T. girder, full groove.		1		15.36	.10	15.06	.20	1.10	14.26	70		8
18.10				90	56	Girder, full groove, half groove, T.		3		68.44	5.00	63.44			68.44	50		9
17.13			17.13	70	70	T. girder, full groove, T.				7.57	.90	.20	6.47		7.57	59		10
1.74		1.88	12.93	90	56	Girder T.		2		14.21	1.00	13.21			14.21	50		11
1.00		1.00	5.95	90	45	T. girder, full groove.				3.91		3.91			3.91	40		12
6.02		8.00	30.30	90	65	Girder, T.				6.45	.50	5.95			6.45	40		13
3.49		1.00	11.53	60	48	Girder, T.			1	9.08	.37	8.71		1.00	8.08	52		14
.01		2.71	.61	70	70	T. girder, half groove.				45.41	2.11	43.30		1.00	44.41	50		15
.32			18.05	70	70	T. girder, half groove.				11.96		11.96			11.96	50		16
5.61	1.75	40.70		90	70	T. girder, half groove.		1	5	3.17		3.02	.15		3.17	65		17
25.49		7.00	72.00	90	44	Girder, T.		1	2	9.20	8.65	.55			9.20	52		18
1.63		6.01	1.58	90	60	T. girder		1		33.60	7.71	25.85	.13	.25	33.44	52		19
.62		2.14	.62	70	70	T. girder				48.03	18.80	16.10	13.13	.04	47.90	53		20
16.09	4.27	16.00	11.39	90	45	T. girder, half groove.		5		15.68	.39	15.29			15.68	53		21
.16		6.43	2.48	60	60	T. girder		1		7.89	.67	6.92	.30	.67	7.22	65		22
2.70		10.48	3.94	90	70	T. girder		1		2.68	.84	1.76	.08	.63	2.05	66		23
2.09	.40	18.00	11.39	90	35	T. girder		1		27.39	5.00	22.39		3.00	24.39	40		24
.25		27.34	41.40	107	56	T. groove, girder.		5		58.60	29.76	28.84			56.00	52		25
5.72		4.00	26.52	90	60	T. girder		1		6.37	.19	6.18			6.37	50		26
6.04		3.80	32.11	90	60	T. girder		1		12.52	3.65	8.49	.39	1.77	10.75	65		27
.11		18.78	9.24	75	60	Girder, T.		1		3.66	.12	3.66			3.66	58		28
9.74	1.67	17.83	40.20	80	60	Girder, T.		1	1	21.51	1.00	20.51			21.51	44		29
.57	.06	43.38		95	56	Girder, T.		3		13.51	.75	12.76			13.51	52		30
4.08		26.57	110	58	T. full groove.		1	2		1.98		1.98			1.98	50		31
1.56		7.00	22.37	90	60	T. girder		1		11.25	.24	11.01			11.25	52		32
.16		6.36		60	60	T. girder		7		30.00	.62	29.38		.62	29.38	52		33
2.50		5.08	19.36	60	60	T. girder		2	1	35.91	3.87	32.04			35.91	50		34
20.32		2.00	4.28	75	60	T. girder		4	2	18.78	.75	18.01			18.78	50		35
			7.01	56	50	T. flat, half groove, full groove.		1	2	15.90	.49	*15.41			15.90	50		36
				118	60	T. girder, half groove.		4		25.68	17.42	7.71	.55	11.32	14.36	62	1.12	37
9.74		3.86	40.20	80	70	T. girder		1	1	37.59	6.53	31.05		2.04	35.55	52		38
	1.67	17.83		70	40	T. girder		1	1	16.84	3.64	13.22			16.84	45		39
.57	.06	11.49		95	56	Girder, T.		3		10.72	3.36	7.36		1.50	9.22	50		40
4.08		43.38		95	56	Girder, T.		3		32.08	14.44	11.39	6.25	4.00	28.08	50		41
		26.57		110	58	T. full groove.		1	2	24.37		24.37		1.00	23.37	52		42
		4.10	25.97	90	56	T. girder		4		29.22	.83	28.37			28.22	55		43
		5.13	2.00	90	50	Girder, T.				6.95	.80	6.05			6.95	50		44
1.56		7.00	22.37	90	60	T. girder				27.03	1.00	26.03		.95	26.98	48		45
.16		6.36		60	60	T. girder				6.15	.21	5.94			6.15	53		46
		5.08	19.36	60	60	T. girder				24.05		24.05			24.05	53		47
		2.00	4.28	75	60	T. girder				6.28	.50	5.78			6.28	52		48
2.50			7.01	56	50	T. flat, half groove, full groove.				6.55	.48	6.05			6.55	52		49
20.32				125	50	T. flat, half groove, full groove.			3	109.37	62.36	62.01	8.00	61.00	48.37	50	11.63	50
						Girder												
		2.00	4.32	90	60	T. girder				6.20	.12	6.08			6.20	60		51
		5.00	5.70	90	60	T. girder		2		10.52	.23	10.27			10.52	52		52
2.34		6.00	11.62	90	60	T. girder		2		16.76	.89	15.90			16.76	47		53
4.54		5.18	13.21	90	60	T. girder		3	1	17.87	1.04	16.83			17.87	52		54
.49		3.00	9.12	90	50	T. girder		3	1	9.60	1.00	8.60			9.60	49		55
			20.10	90	60	T. girder		3		11.71	1.00	10.71			11.71	50		56
1.68				70	48	Girder, T.		1		20.10		20.10			20.10	45		57
				70	55	T. girder				26.55	.50	26.05			26.55	60		58
		1.24	.66	60	60	T. girder				1.90	.16	1.74			1.90	52		59
22.26				95	50	Girder, T.		15		136.44	72.44	60.00	4.00	4.00	132.44	52		60

Includes 2.93 miles leased from Newtonville and Watertown Street Ry. (lessor). See also "Operated under trackage rights" column.

Includes 25.5 miles leased from Old Colony Street Ry.

8.95 miles of construction supported by special device in car house and subway and 8.22 miles by elevated structures.

Double side-bracket construction.

Leased from a manufacturing company.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

Number.		STATE AND ABBREVIATED NAME OF COMPANY.	TRACK—CHARACTER AND LENGTH IN MILES.														
			Total owned and leased.	Main track.		Stidings and turn-outs.	Over-head trolley.	Other mechanical traction.		Animal.	Sur-face.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Con-structed and opened for operation during the year.
				First.	Second.			Kind.	Miles.								
MASSACHUSETTS—Cont'd.																	
61	Worcester and Blackstone Valley.	16.36	15.74		.02	16.36				16.36			16.36		1.50		
62	Worcester and Southbridge.	54.08	48.44	1.76	3.88	54.08				54.08			30.71	23.37	3.00	1.72	
63	Worcester and Holden.	10.37	9.58		.79	10.37				10.37			10.37		2.13		
MICHIGAN.																	
	Total for state.	1,275.03	962.34	201.58	91.11	1,193.90	3d rail.	81.13		1,275.03			1,275.03		10.98	10.55	
1	Adrian Street Railway.	4.06	4.00		.06	4.00				4.06			4.06				
2	Bay City Traction.	23.42	23.99		.43	23.42				23.42			23.42				
3	Benton Harbor-St. Joe Railway and Light.	28.50	20.50	5.00	3.00	28.50				28.50			28.50			2.00	
4	Detroit United Railway.	398.46	265.00	98.88	34.58	398.46				398.46			398.46			5.46	
5	Detroit and Port Huron Shore Line.	127.72	106.66	5.80	16.26	127.72				127.72			127.72				
6	Detroit, Jackson and Chicago.	104.86	99.44		5.42	104.86				104.86			104.86				
7	Detroit, Monroe and Toledo Short Line.	74.46	51.56	10.21	4.69	74.46				74.46			74.46				
8	Escanaba Electric.	8.79	4.73	13.27	.79	8.79				8.79			8.79				
9	Grand Rapids Railway.	61.96	32.98	26.34	2.64	61.96				61.96			61.96			1.39	
10	Grand Rapids, Grand Haven and Muskegon.	42.99	41.34		1.65	5.86	3d rail.	37.13		42.99			42.99		6.32		
11	Grand Rapids, Holland and Chicago.	76.60	62.47	20.66	3.45	76.60				76.60			76.60			1.70	
12	Houghton County Street Railway.	27.04	23.40	2.88	.76	27.04				27.04			27.04				
13	Twin City General Electric.	4.60	4.40		.11	4.60				4.60			4.60				
14	Marquette County Gas and Electric.	4.67	4.50		.17	4.67				4.67			4.67				
15	Jackson Consolidated Traction.	31.00	28.00		3.00	31.00				31.00			31.00				
16	Michigan United Railways.	148.86	133.57	6.15	9.14	104.86	3d rail.	44.00		148.86			148.86				
17	Manistee Light and Traction.	9.80	8.20	1.40	.20	9.80				9.80			9.80				
18	Marquette City and Presque Isle.	6.00	5.80		.20	6.00				6.00			6.00				
19	Menominee and Marinette.	17.90	13.38	2.97	1.55	17.90				17.90			17.90				
20	Muskegon Traction and Lighting.	14.52	13.44		1.08	14.52				14.52			14.52				
21	Owosso and Corunna.	5.10	5.00		.10	5.10				5.10			5.10				
22	Detroit, Flint and Saginaw.	12.25	12.00		.25	12.25				12.25			12.25		1.50		
23	Saginaw Valley Traction.	33.92	33.08		.84	33.92				33.92			33.92		3.16		
24	Trans-St. Mary's Traction.	7.55	5.81		1.74	7.55				7.55			7.55				
MINNESOTA.																	
	Total for state.	457.15	260.32	171.33	25.50	456.02	Cable.	1.13		457.15			457.15			7.83	
1	Interstate Traction.	3.16	3.05		.11	3.16				3.16			3.16				
2	Duluth Street Railway.	75.10	42.50	29.04	3.56	73.97	Cable.	1.13		75.10			75.10			2.71	
3	Twin City Rapid Transit.	363.87	300.40	142.29	21.18	363.87				363.87			363.87			5.12	
4	Granite City Railway.	8.50	8.00		.50	8.50				8.50			8.50				
5	Winona Railway and Light.	6.52	6.37		.15	6.52				6.52			6.52				
MISSISSIPPI.																	
	Total for state.	86.40	79.82	1.50	5.08	86.40				86.40			86.40			.05	
1	Columbus Railway, Light and Power.	4.57	4.23		.32	4.57				4.57			4.57			.05	
2	Delta Electric Light, Power and Manufacturing.	5.00	4.88		.12	5.00				5.00			5.00				
3	Gulfport and Mississippi Coast.	24.87	24.12		.75	24.87				24.87			24.87				
4	Jackson Electric Railway, Light and Power.	13.00	11.00	1.50	.50	13.00				13.00			13.00				
5	Meridian Light and Railway.	12.00	10.50		1.50	12.00				12.00			12.00				
6	Southern Light and Traction.	7.10	7.00		.10	7.10				7.10			7.10				
7	Pascagoula Street Railway and Power.	9.70	8.07		1.63	9.70				9.70			9.70				
8	Vicksburg Railway and Light.	10.16	10.00		.16	10.16				10.16			10.16				
MISSOURI.																	
	Total for state.	921.67	538.84	340.00	42.83	919.20	Cable.	2.47		918.07	3.18	.42	917.07	4.00		11.97	
1	Cape Girardeau-Jackson Interurban.	4.50	4.00		.50	4.50				4.50			4.50				
2	Water, Light and Transit.	1.40	1.00		.40	1.40				1.40			1.40				
3	St. Francois County Railway.	14.03	13.33		.70	14.03				14.03			11.94	*2.00		1.21	
4	Hannibal Railway and Electric.	7.00	6.50		.50	7.00				7.00			7.00			.25	
5	Kansas City and Westport Belt.	20.47	15.66	3.02	1.79	20.47				20.47			20.47			2.30	

* 0.02 mile of construction supported by buildings.

* Second and third main track.

* Inclined-cable.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAILROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by under-ground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
.84		10.03	6.33	70	70	T.....	1	1	13.74	1.00	14.74			15.74	62		61	
13.90				90	56	Girder, T.....	4		45.44	11.27	37.17			48.44	52		62	
4.43				60	50	T.....	2		9.58	1.06	8.50			9.58	50		63	
423.73	19.44	591.57	683.46				229	110	937.52	457.14	429.53	60.85	1107.24	1029.36				
		4.06		60	60	T.....			4.00	3.25	.75			4.00	52		1	
		18.00	5.42	90	35	Groove, T.....	14	12	23.42	23.42				23.42	40		2	
9.00		14.00	14.50	90	45	Girder, T.....	2		23.50	9.50	14.00			23.50	50		3	
53.34		245.73	132.73	117	30	T, girder, groove.	56	22	269.14	154.11	105.91	9.12	90.04	179.10	52		4	
48.31		43.37	84.23	70	30	T, groove.	3	4	108.06	25.45	80.21	1.00	3.23	103.43	52		5	
35.60		22.80	81.56	75	30	T, girder, full groove.			90.44	22.03	77.41		1.36	98.08	52		6	
70.24		9.32	65.14	70	30	T, groove.	10	2	52.12	5.42	30.27	16.43		52.12	52		7	
1.64	.40	6.75	2.04	60	40	Full groove.	2	2	5.52	5.03	.49			5.52	52		8	
7.30	1.58	53.10	8.86	115	40	Girder, T, full groove.	37	1	32.98	32.98			15.00	127.00	53		9	
42.99		3.33	36.66	70	70	T.....	2	4	5.96	4.02	1.84			5.96	44		10	
61.90		7.47	69.13	50	60	T.....	8		46.75	11.30	11.15	24.30	.90	45.85	53		11	
	13.97	13.07	12.97	90	60	Girder, T, half groove.	7	3	23.40	7.40	15.60		3.91	19.49	52		12	
	.24	4.60		45	45	T.....		4	4.49	4.49				4.49	52		13	
.13	2.50	2.00	2.67	35	35	T.....	3	13	4.67	4.67				4.67	50		14	
6.00		18.00	13.00	70	45	T.....	3		21.00	17.00	14.00		2.00	29.00	53		15	
82.00		49.00	99.84	70	45	T.....	32		104.00	54.00	50.00			104.00	52		16	
		5.00	4.80	97	45	T, full groove.	2	6	8.20	3.00	4.00		.30	7.90	42		17	
	.75	6.00		60	40	T, girder.	1	1	6.00	5.75	.25		.30	5.50	53		18	
		17.90		66	40	Girder, T.....	14	14	13.38	13.38				13.38	50		19	
		14.52		70	30	T.....	5		14.52	14.52				14.52	44		20	
		3.50	1.60	90	30	T.....	1	1	5.00	4.00	1.00			5.00	50		21	
		67	12.25	80	67	T.....	3		12.00		12.00			12.00	52		22	
5.28		22.00	11.92	88	35	Groove, T.....	21	17	33.92	23.67	10.05			33.92	44		23	
		7.55		80	80	T.....	1	4	7.55	7.55				7.55	75		24	
55.94		401.57	55.58				65	26	261.08	232.09	4.06	24.33	138.18	122.90		36.93		
		3.16		60	35	T.....			3.16	3.16				3.16	35		1	
.35		75.10		80	35	T.....	11	10	42.50	41.80	.56	.14	8.98	33.52	45		2	
56.58		308.29	56.58	91	43	T.....	53	5	200.40	172.51	3.70	24.19	128.20	72.20	48	36.93	3	
		8.50		40	40	T.....		9	8.50	8.50				8.50	40		4	
		6.52		60	40	T.....	1	2	6.52	6.12	.40		1.00	5.52	42		5	
5.66	.76	78.90	9.50				5	13	83.57	55.88	26.94	.75	.37	83.20				
.18	.06	4.28	.29	70	56	T.....		1	4.25	1.18	3.07			4.25	52		1	
		5.00		60	60	T.....	1	5	5.00	5.00				5.00	52		2	
		20.36	4.51	75	40	T, half groove, full groove.		4	24.12	4.00	19.37	.75		24.12	53		3	
		13.00		75	45	T.....	1	2	11.50	9.50	2.00			11.50	52		4	
1.50		12.00		70	70	Girder, T.....			12.00	9.50	2.50			12.00	50		5	
		7.10		90	40	Girder, T.....	2		7.00	7.00				7.00	52		6	
4.00	.70	5.00	4.70	60	35	T.....		1	9.70	9.70				9.70	44		7	
		10.16		80	40	T.....	1		10.00	10.00			.37	9.63	52		8	
173.31	3.73	686.86	234.81				21	95	571.60	406.18	41.24	24.18	425.09	1260.82		10.80		
		4.30		56	56	T.....		4	4.00	3.00	1.00			4.00	52		1	
.48		1.40		56	32	T.....		2	1.40	1.40				1.40	40		2	
7.20		2.98	11.05	90	60	T.....		2	14.03	2.30	11.53	.20		14.03	56		3	
.50		6.50	.50	60	45	T, girder.	2	2	6.50	6.00	.50			6.50	44		4	
13.06	3.73	3.68	16.70	80	45	T.....	1		17.45	1.65	15.80			17.45	65		5	

* Combination of electric traction and counterweight inclined cable.

* 25.59 miles of construction supported by structures, etc.

* Leased from steam railroad.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																	
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Stidings and turn-outs.	Over-head trolley.	Other mechanical traction.		Animal.	Sur-face.	Elev-ated.	Sub-ways and tun-nels.	Owned.	Leased.	Oper-ated under track-age rights.	Con-structed and opened for operation during the year.	
			First.	Second.			Kind.	Miles.									
MISSOURI—Continued.																	
6	Metropolitan Street Railway...	236.82	117.63	109.82	9.37	234.35	Cable.	2.47		233.22	3.18	.42	236.82			4.26	
7	Missouri Water, Light and Traction.	3.67	3.67		.04	3.67				3.67			3.67				
8	St. Joseph Railway, Light, Heat and Power.	42.94	26.28	15.74	.92	42.94				42.94			42.94			1.34	
9	St. Louis, Lakewood and Grant Park	1.29	1.25		.04	1.29				1.29			1.29			1.29	
10	United Railways.	482.17	253.27	193.31	25.59	482.17				482.17			482.17				
11	St. Louis, St. Charles and Western.	18.24	17.15		1.09	18.24				18.24			15.73	2.51			
12	Sedalia Light and Traction.	8.94	8.75		.19	8.94				8.94			8.94				
13	Springfield Traction.	15.63	11.66	3.97	.59	15.63				15.63			15.63				
14	Southwest Missouri Railroad...	64.57	48.93	14.54	1.20	64.57				64.57			64.57			1.23	
MONTANA.																	
Total for state.		60.24	57.85	9.70	1.69	60.24				60.24			60.24			4.80	
1	Anaconda Copper Mining.	6.75	6.80		.35	6.75				6.75			6.75				
2	Bozeman Street Railway.	2.50	2.50			2.50				2.50			2.50				
3	Butte Electric Railway.	30.19	20.74	8.79	.75	30.19				30.19			30.19			4.00	
4	Great Falls Street Railway.	11.00	9.75	1.00	.25	11.00				11.00			11.00				
5	Helena Light and Railway.	18.80	18.80		.34	18.80				18.80			18.80			.80	
NEBRASKA.																	
Total for state.		218.73	137.71	80.08	11.96	211.01	Steam.	4.50	3.22	218.73			186.35	32.38	4.93	27.83	
1	Citizens Railway.	14.00	11.50	2.00	.50	14.00				14.00			14.00			11.00	
2	Omaha, Lincoln and Beatrice.	6.13	5.39		.74	6.13				6.13			6.13		.43	.50	
3	Lincoln Traction.	42.51	30.00	7.50	4.11	42.51				42.51			40.40	2.11			
4	Nebraska City Street Railway.	2.10	2.00		.10	2.10		2.10		2.10			2.10				
5	Omaha and Council Bluffs.	140.37	76.80	50.56	4.01	140.37				140.37			110.10	30.27		8.33	
6	Red Cloud Street Railway.	1.12	1.12			1.12			1.12	1.12			1.12				
7	Omaha and Southern Interurban.	8.00	6.00		2.00	8.00				8.00			8.00		3.00	8.00	
8	Bloux City, Crystal Lake and Homer.	4.50	4.00		.50		Steam.	4.50		4.50			4.50		1.50		
NEVADA.																	
Total for state.		7.15	7.00		.15	7.15				7.15			7.15			.20	
1	Reno Traction.	7.15	7.00		.15	7.15				7.15			7.15			.20	
NEW HAMPSHIRE.																	
Total for state.		247.10	225.12	9.98	12.00	247.10				247.10			247.10		1.79	24.43	
1	Berlin Street Railway.	7.75	7.50		.25	7.75				7.75			7.75				
2	Claremont Railway and Light-ing.	8.41	7.75		.66	8.41				8.41			8.41			.62	
3	Boston and Maine (electric branch).	30.17	27.88		2.29	30.17				30.17			30.17				
4	Chester and Derry.	8.00	7.75		.25	8.00				8.00			8.00				
5	Dover, Somersworth and Roch-ester.	17.74	17.00		.74	17.74				17.74			17.74				
6	Exeter, Hampton and Ames-bury.	21.61	20.72		.89	21.61				21.61			21.61				
7	Hudson, Pelham and Salem.	29.41	26.01	1.43	1.07	29.41				29.41			29.41		1.19		
8	Keene Electric Railway.	8.58	8.34		.24	8.58				8.58			8.58				
9	Lancaster Street Railway.	8.47	8.36		.11	8.47				8.47			8.47				
10	Manchester and Derry.	8.16	8.04		.12	8.16				8.16			8.16		.60	8.16	
11	Manchester Street Railway.	30.46	28.00	4.55	2.71	30.46				30.46			30.46			3.00	
12	Manchester and Nashua.	12.75	12.50		.25	12.75				12.75			12.75			12.75	
13	Haverhill, Plinston and New-ton.	8.48	8.16		.32	8.48				8.48			8.48				
14	Portsmouth Electric Railway (Boston and Maine).	19.27	18.10		1.17	19.27				19.27			19.27				
15	Portsmouth and Exeter.	12.24	11.98		.26	12.24				12.24			12.24				
16	Seabrook and Hampton Beach.	5.80	5.53		.27	5.80				5.80			5.80				
NEW JERSEY.																	
Total for state.		1,324.12	884.65	377.24	62.03	1,191.67	3d rail.	132.45		1,316.46	7.26		926.90	397.13	35.32	31.78	
1	Atlantic Coast Electric Railway	33.29	19.70	12.84	.75	33.29				33.29			27.50	5.73			
2	Central Passenger Railway.	2.83	1.85	.70	.27	2.83				2.83			2.83				
3	West Jersey and Seashore (At-lantic City and Longport branch).	18.55	8.53	8.30	1.60	18.55				18.55			18.55				
4	Atlantic City and Suburban.	18.42	17.50		.92	18.42				18.42			18.42				
5	Atlantic City and Shore.	6.58	3.93	1.93	.72	5.08	3d rail.	1.50		6.58			4.30	2.19	22.38	2.49	

125.30 miles of construction supported by structures, etc.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.							Miles of sub-way or tunnels occupied by tracks.		STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Miles of street occupied by underground conduits for mains or feeders.		Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.		Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.	Poles to the mile, number.				
Owned by company.	Not owned by company.			Maximum.	Minimum.				Total.	Span wire.	Side bracket.	Center pole.							
8.43		228.39	8.43	141	45	Girder, T, full groove, trilby.	21	46	19	120.78	116.05	4.73	96.57	24.21	58	10.90	6		
		3.67		54	54	T, girder				3.63	3.63			3.63	45		7		
3.05		39.89	3.05	92	35	Girder, T		4	9	26.28	25.16	1.12		26.28	53		8		
1.29		.61	.68	70	70	T				1.29	1.29			1.29	39		9		
99.69		349.85	132.22	117	40	Girder, trilby, groove, T		17		288.86	260.11	10.00	18.75	168.27	175.00	53	10		
11.30			18.24	85	60	T				18.24	18.24			18.24	53		11		
		8.94		72	66	Full groove, T		1	1	8.75	8.75			8.75	52		12		
		15.63		75	65	Girder T			10	11.56	11.56			11.56	52		13		
38.11		20.72	43.85	80	68	Girder, T		24		48.83	48.33	.50	.25	48.58	55		14		
10.62	4.76	42.87	26.37					21		28.44	43.81	14.63		28.44		3.41			
	3.40	3.35	3.40	60	36	T			3	6.40	4.97	1.43		6.40	53		1		
		2.50		36	36	T				2.50	2.00	.50		2.50	50		2		
5.00		15.00	15.19	72	50	T			7	20.74	18.74	2.00		20.74	44		3		
		11.00		68	60	Girder, T			2	10.00	10.00			10.00	52		4		
5.62	1.36	11.02	7.78	60	28	Girder, T			9	18.80	8.10	10.70		18.80	45		5		
21.58	1.49	181.91	34.82					44		131.33	125.25	2.30	3.78	14.16	117.17				
2.30	1.30	14.00		70	60	T		2		11.50	11.50		.80	10.70	52		1		
.43	1.29	5.27	.86	73	70	T		2		6.13	4.08	2.05	.68	5.45	33		2		
		25.00	17.51	72	35	Girder, T		7		30.90	30.90			30.90	50		3		
		2.10		62	45	Girder, T											4		
9.05		131.32	9.05	73	45	Girder, T		35		76.80	72.77	.25	3.78	12.68	64.12	50	3.41		
		1.12		22	22	T											6		
5.90		2.10	5.90	70	70	T				6.00	6.00			6.00	50		7		
4.00		1.00	3.50	60	60	T											8		
	.69	6.00	1.15					4		7.00	5.00	2.00		7.00					
	.65	6.00	1.15	60	40	Girder, T			4	7.00	5.00	2.00		7.00	35		1		
50.76		107.15	79.95					12		226.02	52.23	171.28	2.51	4.64	221.38				
2.00		2.50	5.25	80	80	T		3		7.50	1.00	6.50		7.50	52		1		
		8.41		60	50	T		1		8.41	1.20	7.21		8.41	50		2		
5.95		16.82	13.35	90	45	Girder, T		1		27.88	8.00	19.88	.94	26.94	60		3		
1.25		8.00		50	45	T				7.75	.50	7.25		7.75	45		4		
.04		17.10	.64	70	58	T, girder		2		17.00	6.74	10.07	.19	17.00	62		5		
.95		20.76	.85	60	50	T		2		20.72	.50	20.22		20.72	62		6		
15.20		15.40	14.01	70	60	T		2		20.91	3.35	23.39	.16	26.91	62		7		
		1.00	7.58	90	70	T, girder		2		8.58	.24	8.34		8.58	45		8		
		8.87		60	40	T, girder		2		8.36	0.35	2.00		8.36	42		9		
6.00		7.16	1.00	70	70	T				8.04	.60	7.44		8.04	53		10		
2.55		20.89	10.60	90	55	T, girder		3		24.90	21.0	6.50	1.00	28.60	53		11		
12.25		.50	12.25	70	70	T				12.50	.75	11.75		12.50	53		12		
3.19		5.29	3.19	70	70	T		1		8.16	.27	7.87	.32	8.16	62		13		
.60		7.72	11.55	72	60	Girder, T		2	2	18.10	1.14	16.96	.70	17.40	53		14		
.28		11.96	.28	60	60	T		1		11.96	.21	11.46	.31	11.96	62		15		
		3.40		60	60	T		1		5.53	.29	4.74	.53	5.53	62		16		
402.31	.46	784.00	540.12					60		849.27	654.42	171.97	21.88	279.30	508.91	14.84			
18.98		13.56	19.73	70	70	T, girder		1		19.70	19.70		1.33	19.37	50		1		
		2.83		86	86	Girder		3		1.85	1.85		1.85	.15	46		2		
18.55		18.55		141	85	Girder, T			2	9.78		1.00	8.78	9.63	42		3		
3.00		10.75	7.67	80	80	T			1	17.50	12.50	5.00		17.50	45		4		
0.58		2.09	4.49	85	60	T		2		3.71	.53	1.80	1.37	3.71	40		5		

* Leased from bridge company.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
NEW JERSEY—Continued.																
6	Bridgeton and Millville.....	37.85	36.15		1.70	37.85				37.85			37.85			
7	West Jersey and Seashore (Camden and Atlantic City branch).....	152.76	74.82	72.43	5.51	21.81	3d rail.	130.95		149.70	3.00		152.76			
8	Cape May, Delaware Bay and Sewell's Point.....	10.52	6.94	2.94	.64	10.52				10.52			10.52			
9	Ocean Street Passenger Railway, New Jersey and Hudson River Railway and Ferry.....	1.53	1.46		.07	1.53				1.53			1.53			
10	Jersey Central Traction.....	31.32	19.76	10.09	1.47	31.32				31.32			31.32			
11	Millville Traction.....	26.74	25.86		.86	26.74				26.74			26.74		2.73	5.80
12	Morris County Traction.....	13.11	12.55		.56	13.11				13.11			13.11			
13	Burlington County Railway.....	30.00	23.55	5.85	.60	30.00				30.00			30.00			8.00
14	Public Service Railway.....	15.49	14.81		.68	15.49				15.49			15.49			
15	Ocean City Electric Railroad.....	691.84	413.91	241.07	36.86	691.84				697.64	4.20		359.91	331.93		7.97
16	Easton and Washington.....	7.50	7.25		.25	7.50				7.50			7.50			
17	Point Pleasant Traction.....	18.00	17.02		.98	18.00				18.00			18.00			5.00
18	Monmouth County Electric.....	3.50	3.40		.10	3.50				3.50			3.50			
19	Hudson River Traction.....	17.71	15.85		1.86	17.71				17.71			17.71			5.58
20	New Jersey Rapid Transit.....	17.16	13.53	3.38	.25	17.16				17.16			17.16		.80	
21	Trenton Street Railway.....	6.58	6.25		.33	6.58				6.58			6.58			
22	Camden and Trenton.....	72.44	55.54	14.49	2.41	72.44				72.44			40.03	22.41		
23	New Jersey and Pennsylvania.....	35.14	31.34	3.10	.70	35.14				35.14			24.27	.87	9.41	
24	Trenton and New Brunswick.....	25.90	24.72		1.18	25.90				25.90			1.90	24.00		
25	Five Mile Beach Electric Railway.....	23.61	23.11		.50	23.61				23.61			23.61			
26		5.75	5.50		.25	5.75				5.75			5.75			
NEW MEXICO.																
Total for territory.....		10.10	9.40		.70	10.10				10.10			10.10			1.50
1	Albuquerque Traction.....	5.10	4.90		.20	5.10				5.10			5.10			
2	Las Vegas Railway and Power.....	5.00	4.50		.50	5.00				5.00			5.00			1.50
NEW YORK.																
Total for state.....		3,884.74	2,409.66	1,183.88	289.20	3,145.62		645.62	93.30	3,623.95	188.07	72.72	2,877.14	1,007.80	160.43	184.12
1	Albany and Hudson Railroad.....	45.54	37.25	2.10	5.19	6.29	3d rail.	37.25		45.54			45.54		2.06	
2	United Traction.....	87.09	60.31	34.70	2.08	87.09				87.09			76.88	*10.21	*6.73	4.44
3	Hudson Valley Railway.....	128.05	117.07	3.58	7.40	128.05				128.05			128.05		10.20	
4	Troy and New England.....	10.00	8.90		1.10	10.00				10.00			10.00			
5	St. Lawrence International.....	7.69	7.50		.19	7.69				7.69			7.69			
6	Babylon Railroad.....	1.50	1.53		.06				1.50	1.50			1.50			1.50
7	Eastern New York Railroad.....	15.00	12.00		3.00	15.00				15.00			15.00			
8	Binghamton Railway.....	46.00	31.45	12.55	2.00	46.00				46.00			46.00			
9	International Railway.....	259.97	160.78	75.06	24.13	259.97				259.97			259.97	*24.12	3.12	11.08
10	Croton Street Railway (Buffalo).....	103.65	52.58	46.48	4.59	103.65				103.65			103.65			
11	Buffalo and Depew.....	13.59	6.69	6.69	.21	13.59				13.59			13.59			
12	Buffalo Southern.....	19.86	19.50		.36	19.86				19.86			19.86			
13	Buffalo and Lake Erie.....	96.93	82.82	10.20	3.91	96.93				96.93			96.93		38.34	
14	Buffalo and Williamsville.....	11.00	8.75	2.25		11.00				11.00			11.00			
15	Catskill Electric Railway.....	5.50	5.50		.20	5.50				5.50			5.50			
16	Corning and Painted Post.....	5.75	5.25		.50	5.75				5.75			5.75			
17	Cortland County Traction.....	17.18	15.92		1.26	17.18				17.18			17.18			1.75
18	Elmira Water, Light and Railroad.....	27.24	23.15	2.31	1.78	27.24				27.24			14.17	13.07		
19	Elmira and Seneca Lake.....	16.41	16.13		.28	16.41				16.41			16.41		6.00	
20	Fishkill Electric Railway.....	7.23	6.79		.44	7.23				7.23			7.23	2.86		
21	Lake Ontario and Riverdale.....	1.04	1.00		.04				1.04	1.04			1.04			
22	Glen Cove Railroad.....	3.45	3.28		.17	3.45				3.45			3.45			
23	Adirondack Lakes Traction.....	4.65	4.45		.20	4.65				4.65			4.65			
24	Fonda, Johnstown and Gloversville.....	77.95	53.37	21.20	3.38	77.95				77.95			73.53	4.42		
25	Great South Bay Ferry.....	1.25	1.25			1.25				1.25			1.25			
26	New York and Long Island.....	40.02	35.60	3.57	.85	40.02				40.02			40.02		9.90	5.76
27	Hornellville Electric Railway.....	5.07	4.85		.22	5.07				5.07			5.07			
28	Hornellville and Canisteo.....	4.33	4.32		.01	4.33				4.33			4.33			
29	Huntington Railroad.....	3.24	3.04		.20	3.24				3.24			3.24			
30	Ithaca Street Railway.....	10.06	9.53		.53	10.06				10.06			10.06		3.38	
31	Jameson Street Railway.....	24.64	19.79	4.10	.75	24.64				24.64			24.64			
32	Chautauque Traction.....	26.73	25.03		1.70	26.73				26.73			26.73			8.00
33	Keeseville, etc., Railroad.....	6.22	5.64		.58	6.22	3d rail.	5.22		6.22			6.22			
34	Kingston Consolidated.....	9.18	7.98	.84	.36	9.18				9.18			9.18			
35	Lima-Honesoye Light and Railroad.....	5.30	4.60		.70	5.30				5.30			5.30			
36	Walkill Transit.....	12.40	12.40			12.40				12.40			12.40			
37	Orange County Traction.....	17.04	14.84	1.00	1.20	17.04				17.04			17.04			
38	New Paltz, Highland and Poughkeepsie.....	8.52	9.27		.25	8.52				8.52			8.52			

* Operated also by steam.

* Includes miles of track, as follows: Conduit-trolley, 226.66; third-rail, 415.86; street-cable, 1.15; steam, 2.05.

* 25.75 miles of construction supported by structures, etc.

* Includes 2.66 miles leased to and operated by Cohoes Railway Company.

CONSTRUCTION, BY COMPANIES, 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.							Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.
On private right of way.		Within city limits.	Outside city limits.	Weights of rails per yard.			Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.				
Owned by company.	Not owned by company.			Maximum.	Minimum.				Style of rail.	Total.	Span wire.	Side bracket.			Center pole.			
6.82		14.15	23.70	60	45	T.....	2	3	20.15	7.94	28.21				26.15	53	6	
182.70		7.00	145.70	100	85	T.....	11	2	21.81	21.01	.80				21.81	42	7	
2.05	.24	4.65	5.87	70	56	T.....		1	6.94	5.20	1.74				6.94	52	8	
		1.53		80	80	T.....			1.46	1.46			.20	1.26		52	9	
17.90		21.32		80	58	T, half groove	0		19.76	17.51	2.25		1.00	18.76		55	10	
18.19	.22	4.46	22.28	72	56	Girder, T.....	2	2	23.88	5.51	20.37		1.00	24.86		53	11	
3.26		3.63	9.48	90	48	T, girder.....	1	5	12.55	2.85	9.70			12.55		43	12	
6.20		6.50	23.50	80	70	Girder, T.....	4		23.55	10.25	12.30	1.00	3.20	20.35		55	13	
3.90		1.34	14.15	70	70	Girder, T.....	3		14.81	10.80	3.91		1.34	13.47		42	14	
76.56		550.49	132.35	114	56	Girder, trilby, flat, T.....	145	41	427.08	283.08	32.40	8.90	234.06	193.02		88	15	
		7.50		65	45	T, girder.....		2	7.25	7.25				7.25		43	16	
15.20		4.54	13.62	80	74	T.....	3		18.00	2.80	15.20			18.00		52	17	
4.40		3.10	.40	80	60	Girder, T.....	1		3.40	3.40				3.40		45	18	
3.54		3.00	14.71	90	65	Girder, T.....	5		15.85	15.85				15.85		32	19	
4.22		17.16		80	56	T, girder.....	2		13.53	13.53				13.53		35	20	
		6.58		60	60	T.....		2	6.25	6.25				6.25		40	21	
5.50		35.00	37.44	90	60	Girder, T, groove.....	4	5	56.54	28.86	15.85	1.83	20.00	36.54		50	22	
4.79		12.94	22.20	90	56	Girder, T.....			31.34	15.97	15.37		3.10	28.24		40	23	
10.65		12.29	13.61	95	80	Girder, T.....	2		24.72	18.73	5.97		2.65	22.07		44	24	
23.11			23.61	60	60	T.....			23.11	23.11				23.11		44	25	
			5.75	00	60	T.....		1	5.75	5.75				5.75		42	26	
	.25	9.85	.25					1	10.10	9.35	.75			10.10				
	.25	4.85	.25	60	50	T.....			5.10	4.85	.25			5.10		54	1	
		5.00		60	60	T.....		1	5.00	4.50	.50			5.00		53	2	
975.16	226.12	2,670.53	1,214.21				22.36	401	67	2,134.62	1,357.99	671.57	103.06	*263.55	*1,545.32		261.83	
35.19		4.40	41.14	80	80	Full groove.....			8.29	8.29				8.29		59	1	
5.45		87.09		141	47	T, girder.....	19	2	60.76	60.01	.75		*29.87	*29.15		52	2	
79.08		28.96	99.08	141	60	T, girder, full groove.....	10	5	117.07	23.25	91.96	1.86		117.07		53	3	
10.00			10.00	65	65	T.....			8.90	8.90				8.90		42	4	
7.60		1.00	6.60	65	56	T.....			7.60	.19	7.31			7.50		48	5	
	8.50	1.59		127	56	Girder, T.....											6	
6.00		3.50	14.50	70	60	T.....			12.00	12.00				12.00		50	7	
4.50		41.30	4.50	94	40	Girder, T.....	11	2	31.45	28.85	1.47	1.13		31.45		43	8	
59.96	23.83	177.03	82.04	140	45	Girder, T.....	52	5	160.78	116.05	31.43	13.30	61.80	98.06		44	9	
2.88		101.79	1.86	140	45	Girder, T.....	42	5	52.58	48.50	1.02	3.06	37.05	15.53		44	10	
9.13		4.25	9.34	73	62	Girder.....			6.90	3.40		3.50		6.90		42	11	
1.47		.50	19.38	84	56	Girder, T.....	7	2	19.50	.50	19.00			19.70		50	12	
8.00		90.44	6.49	80	56	T, girder.....	29	5	87.17	20.68	26.49			87.17		58	13	
		3.23	7.75	90	56	Girder, T.....		6	8.75	2.25	6.50		2.25	6.50		45	14	
		2.63	2.85	70	60	T, full groove.....			3.50	2.00	3.50			5.50		42	15	
.25		4.27	1.48	90	56	Girder, T.....	1		5.10	4.90	.50			5.40		43	16	
8.33		8.85	8.33	95	86	Girder, T.....	3		15.92	4.74	11.18			15.92		50	17	
1.78		25.46	1.78	90	50	Girder, T.....	4		23.15	20.71	2.44			23.15		45	18	
11.34	5.07	3.09	13.41	65	56	T.....	2		16.41	2.65	13.76			16.41		45	19	
		4.30	2.93	95	45	Trilby, T.....	2		6.79	2.00	4.79			6.79		45	20	
		1.04		90	40	Girder.....										21	21	
	.57	3.45		137	70	Girder, T.....			3.45	2.70	.75		1.00	2.45		47	22	
4.00		.85	4.00	56	56	T.....			4.65	.17	4.48			4.65		30	23	
65.14		12.81	65.14	91	56	Girder, T.....	7		55.61	18.00	13.27	22.34		55.61		60	24	
1.25		1.25		50	56	T.....			1.25		1.25			1.25		53	25	
7.85		27.75	12.27	73	70	Girder, T.....	9	1	35.49	3.43	32.17		1.10	34.50		58	26	
		3.07		50	40	Girder, T.....	1		4.85	3.85	1.00			4.85		42	27	
3.31	1.02	1.75	2.58	40	40	T.....			4.32	1.02	3.30			4.32		42	28	
3.04	1.14	3.24		50	56	T.....			3.04	.28	2.76			3.04		44	29	
2.81	1.00	7.25	2.81	62	45	T.....	1	2	9.53	5.51	4.02		1.01	8.52		45	30	
.75		19.00	5.64	70	30	T, girder.....	6		19.9	16.79	3.00			19.79		45	31	
21.40	5.25	4.59	22.14	80	40	T, girder.....	3		25.03	24.03	1.00			25.03		45	32	
6.22			6.22	60	56	T.....			1.00	.25	.75			1.00		52	33	
.24		9.18		90	60	Girder, T.....	8		9.18	9.18			8.43	.75		32	34	
5.30			5.30	56	44	T.....			4.00		4.00			4.00		45	35	
	5.00	6.80	5.60	67	60	Girder, T, half groove.....	1		12.40	7.90	4.50			12.40		60	26	
.17	1.74	8.72	8.32	106	60	T, girder, groove.....			14.84	8.61	9.23		6.52	8.32		44	37	
8.52		.50	8.02	90	70	Girder, T.....	2		8.27	7.00	1.27		.50	7.77		66	38	

* See "Operated under trackage rights" column.

* Leased from Cohoes Railway Company.

* 1.74 miles of construction supported by covered bridges.

* Leased from steam railroad.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under truckage rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
NEW YORK—Continued.																
39	New York City Railway.....	274.17	126.94	120.80	26.43	1.57	Cond't	204.27	68.33	274.17			1.57	272.60	5.94	
40	Forty-second Street, Manhattanville and St. Nicholas Avenue.....	23.49	11.71	11.53	.25		Cond't	12.90	10.50	23.49			23.49		5.03	
41	Dry Dock, East Broadway and Battery.....	17.04	7.99	7.13	2.52		Cond't	9.39	8.25	17.64			17.64		4.84	
42	New York City Interborough.....	8.24	4.12	4.12		8.24				8.24			8.24		1.76	
43	Southern Boulevard Railroad.....	7.88	3.94	3.94		7.88				7.88			7.88		2.36	
44	Yonkers Railroad.....	35.09	24.44	8.39	2.06	35.09				35.09			35.09		10.74	
45	Union Railway.....	99.69	48.95	47.52	3.32	99.69				99.69			95.59	14.10	10.37	
46	Tarrytown, White Plains and Mamaroneck.....	23.59	22.83		.76	23.59				23.59			23.59			
47	Westchester Electric Railroad.....	38.41	29.01	8.40	.94	38.41				38.41			38.41		5.74	
48	Interborough Rapid Transit.....	190.53	59.80	*94.18	36.55		3d rail.	190.53			118.05	72.48	*72.48	118.05		.33
49	Pelham Park Railroad.....	1.50	1.40		.10			1.50		1.50			1.50			
50	City Island Railroad.....	2.00	1.80		.20			2.00		2.00			2.00			
51	Brooklyn Heights Railroad.....	232.62	106.47	102.09	24.06	231.47	Cable	1.15		232.62			1.15	*231.47	6.54	
52	Nassau Electric.....	132.81	63.11	62.27	7.43	132.81				132.81			132.81		7.19	
53	Brooklyn Union Elevated.....	95.04	40.00	40.00	15.04	19.00	3d rail.	76.04		25.02	70.02		84.42	*10.62		
54	Brooklyn, Queens County and Suburban.....	57.31	27.30	26.61	3.40	57.31				57.31			57.31		3.25	2.23
55	South Brooklyn Railway.....	31.71	10.64	8.88	12.19	29.66	Steam	2.05		31.47		.24	6.04	25.67		
56	Sea Beach Railway.....	14.19	6.22	6.22	1.75	14.19				14.19			14.19			
57	Coney Island and Gravesend.....	6.79	3.25	3.19	.35	6.79				6.79			6.79			
58	Transit Development Co.....	(1)														
59	Bridge Operating Co.....	3.59	1.63	1.62	.34	3.59				3.59				3.59		
60	Coney Island and Brooklyn.....	48.30	24.14	22.51	1.65	48.30				48.30			26.38	21.92	4.90	
61	Van Brunt Street and Erie Basin.....	2.25	1.13	1.12		2.25				2.25			2.25		.25	
62	Marine Railway.....	.55	.45	.06	.04	.55				.55			.55			
63	New York and Queens County.....	74.47	40.24	28.95	5.27	74.47				74.47			74.47		.80	
64	Long Island Electric.....	26.71	16.70	8.70	1.31	26.71				26.71			26.71		7.01	
65	Ocean Electric Railway.....	6.86	4.00	2.51	.26	6.86				6.86			6.50	4.30		
66	Staten Island Midland.....	27.68	16.08	11.66	.11	27.68				27.68			27.68		.10	
67	Richmond Light and Railroad.....	31.02	18.45	12.13	.01	31.02				31.02			31.02			
68	Southfield Beach Railroad.....	4.00	1.67	1.88	.25	4.00				4.00			4.00			
69	Electric City Railway.....	2.85	2.48	.30	.07	2.85				2.85			2.85			
70	Niagara Gorge Railroad.....	23.43	15.33	6.83	1.27	23.43				23.43			14.73	8.70	2.00	
71	Northport Traction.....	2.74	2.69		.05	2.74				2.74			2.74			
72	Ogdensburg Street Railway.....	10.00	9.50		.50	10.00				10.00			10.00			
73	Western New York and Pennsylvania.....	82.38	76.40	.30	5.68	82.38				82.38			77.15	5.23		24.01
74	Onondaga Railway.....	115.45	49.14	47.11	10.20	8.63	3d rail.	106.82		115.45			8.63	*106.82		
75	Onondaga and Mohawk Valley.....	66.33	61.33		6.00	66.33				66.33			66.33			
76	Hudson River and Eastern.....	2.45	2.18		.27	2.45				2.45			2.45		2.45	
77	Oswego Traction.....	11.15	10.50		.65	11.15				11.15			11.15			
78	Peekskill Lighting and Railroad.....	10.37	10.02		.35	10.37				10.37			10.37			.07
79	Putnam and Westchester.....	2.79	2.70		.09	2.79				2.79			2.79		2.79	
80	Penn Yan, Keuka Park and Branchport.....	9.25	8.50		.75	9.25				9.25			9.25			
81	Plattsburgh Traction.....	7.65	7.65			7.65				7.65			7.65		1.25	
82	New York and Stamford.....	16.31	14.12	2.19		16.31				16.31			16.31	(1)	*6.01	
83	Port Jervis Electric Light, Power, Gas and Railroad.....	4.35	4.30		.05	4.35				4.35			4.35			
84	Poughkeepsie City and Wappingers Falls.....	17.33	15.90	1.14	.50	17.33				17.33			17.33			
85	Cohoes Railway.....	196.73	6.25		.46	6.73				6.73			6.73	(1)	*2.66	
86	Rochester Railway.....	171.96	101.97	58.17	11.82	171.96				171.96			116.30	*55.66	*10.49	22.22
87	Rochester, Charlotte and Man-ton.....	7.75	7.50		.25	7.75				7.75			7.75			
88	Rochester, Syracuse and East-ertown.....	71.73	33.59	35.50	.64	71.73				71.73			71.73			71.73
89	Rochester and Eastern Rapid Railway.....	47.67	41.09	2.47	4.11	47.67				47.67			44.94	2.73	4.70	
90	Rochester and Suburban.....	*20.11	10.43	8.90	.79	20.11				20.11			20.11		3.44	
91	New York and North Shore.....	4.21	4.10		.11	4.21				4.21			4.21		4.21	
92	Schenectady Railway.....	121.50	63.24	51.08	4.59	121.50				121.50			110.20	*11.30	10.60	.77
93	Nassau County Railway.....	1.60	1.55		.05	1.60				1.60			1.60			
94	Geneva, Waterloo, etc., Traction.....	17.75	17.00		.75	17.75				17.75			17.75			

*0.75 mile of construction supported by elevated structures.

*0.94 mile of construction supported by elevated structures.

*Second, third, and fourth main track.

*Track in subway which is leased from city of New York.

*Includes 2.41 miles on bridge owned by city of New York.

*13.12 miles of construction supported by elevated structures and buildings.

*4.37 miles of construction supported by elevated structures and buildings.

*Includes 3.60 miles on bridge owned by city of New York.

*4.31 miles of construction supported by elevated structures and buildings.

*0.20 mile of construction supported by buildings.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.							Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.		Number.
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.				
Owned by company.	Not owned by company.			Maximum.	Minimum.						Total.	Span wire.	Side bracket.				Center pole.		
		274.17		113	47	Girder, half groove, full groove.	11	1	1.57	1.57			1.57			58	130.07	39	
		23.49		113	47	Full groove.		1										40	
		17.64		110	55	Full groove, half groove.												41	
		8.24		107	107	Half groove, full groove.			4.12	1.17	.50	2.45	4.12			52		42	
		7.88		90	90	Full groove.	1		3.94	3.94			13.19			52		43	
		16.00	19.00	90	90	Girder, full groove.	3		24.44	24.44			3.00	21.44		55	3.85	44	
		99.69		90	90	Full groove.	8		52.17	20.94	1.00	20.23	151.23			52	3.80	45	
		7.36	16.23	107	56	Girder, T.	2		23.59	8.50	15.09			23.59		52		46	
		25.86	12.55	90	90	Full groove, half groove.	2		29.95	28.95	.25	.75	23.95	6.00		55	4.04	47	
1.00		190.53		100	63	T.		22.12									10.00	48	
1.50		1.50		30	30	Half groove.												49	
2.00		2.00		30	30	Half groove.												50	
26.65		232.62		98	90	Girder.	17		107.74	107.74			494.32			49	26.79	51	
11.56		132.81		94	90	Girder.	2		64.20	63.28	.92		759.83			50	8.98	52	
30.56		95.04		85	56	T.	1		13.36	13.17		.19	12.96			43	5.33	53	
10.05		57.31		98	90	Girder.	9		27.48	27.48			223.15			52	9.27	54	
19.52		31.71		70	56	T.		24	11.04	11.04			10.84			47	5.26	55	
12.44		14.19		70	56	T.	1		6.22	6.22			4.72	1.50		53	.02	56	
.11		6.79		94	90	Girder.	1		3.25	3.25			3.25			48		57	
		3.59		80	80	T.			1.63	1.22	.41		1.63			52		58	
10.50	2.50	48.30		90	90	Girder, T.	2		24.14	24.14			24.14			45		59	
		2.25		90	90	T.			1.13	1.13			1.13			60		61	
	.55	.55		62	62	T.			.45	.07	.38			.45		55		62	
13.31		74.17		107	70	Girder, T.	3		40.24	38.34	1.90		37.10	3.14		42	3.15	63	
3.32		23.42	3.32	90	60	Girder.	5		16.74	13.74	3.00		.95	15.79		58		64	
	7.10	6.89		103	56	Girder, T.			4.09	3.59	.50			4.09		44		65	
1.70		27.08		70	65	T, girder.	1		16.08	10.78	5.30			16.08		65		66	
4.00		31.02		90	85	T.	3		18.85	12.73	6.12			18.85		55		67	
		4.00		70	70	T.			1.87			1.87		1.87		55		68	
		2.83		73	73	Girder.			2.60	2.60				2.60		41		69	
12.65		14.73	8.70	65	65	T.		3	16.40	9.63	6.77		10.00	6.40		45		70	
.69	.20	2.74		73	66	Girder, T.	1		2.74	1.11	1.63			2.74		44		71	
		10.00		52	48	T, girder.	1		9.50	8.50	1.00			9.50		52		72	
45.22	21.70	10.49	71.80	70	56	T.	8	6	77.41	8.72	68.69		.50	76.61		55		73	
2.46	106.32	6.07	108.78	117	60	Girder, T.	4		5.04	4.55	.49		.33	4.71		43		74	
50.28		12.71	53.02	100	60	T, girder.	1		66.33	66.33				66.33		52		75	
		2.45		73	60	T, girder.			2.18	1.18	1.00			2.18		43		76	
.11	.19	6.60	4.65	110	45	Girder, T, full groove.	6	3	19.50	5.50	5.00			10.50		35		77	
.78		5.00	5.37	96	56	T, groove, girder.			10.02	2.42	7.60			10.02		57		78	
		1.11	1.68	96	56	T, girder.			2.70	.34	2.36			2.70		43		79	
1.50		.75	8.20	70	60	T, girder.			6.50	.50	6.00			6.50		40		80	
	3.00	4.22	3.43	60	50	T.		1	7.65	4.65	3.00			7.65		42		81	
		12.15	4.16	109	65	T.	3		14.13	13.33	.23	.57		14.13		52		82	
		4.35		56	56	T.	3		4.30	2.30	2.00			4.30		40		83	
		10.00	7.33	90	60	Girder, T.		1	15.60	6.60	9.00			15.60		50	.26	84	
		6.73		114	47	Girder.		2	2.66	2.66				2.66		52		85	
28.42	30.74	120.85	51.11	119	40	Girder, T, half groove, full groove.	24		101.97	35.98	62.32	3.67	11.17	87.80		50	24.98	86	
7.75		7.75		40	40	T.		1	7.75		7.75			7.75		60		87	
60.29		11.47	60.29	90	70	T.		4	36.23	36.23				36.23		70		88	
44.74		7.63	40.04	73	70	Girder, T.		8	47.67		47.67			47.67		50		89	
15.10		6.06	14.05	73	40	Girder, T.		3	10.43	9.21	1.22			10.43		50	1.90	90	
	1.00	.06	4.15	70	70	Girder.			4.10	.23	3.87			4.10		70		91	
47.46		50.83	70.67	117	60	Girder, T, full groove.		8	63.24	43.19	.56	19.49	.61	62.63		52	4.47	92	
	.10	1.60		85	56	Girder, T.			1.55	.25	1.30			1.55		44		93	
1.62		8.43	9.32	70	45	Girder, T.		1	17.00	8.43	8.57			17.00		52		94	

¹¹ This company owns no track but generates current and does construction and repair work for the other companies of the Brooklyn Rapid Transit System.

¹² Entire trackage (3.59 miles) on bridge owned by city of New York.

¹³ Leased from steam railroad.

¹⁴ See "Operated under trackage rights" column.

¹⁵ Includes 5.86 miles leased from an operating company.

¹⁶ Leased to and operated by the United Traction Company.

¹⁷ Leased from the United Traction Company.

¹⁸ Includes 9.20 miles leased from Rochester and Suburban Railway Company.

¹⁹ Includes 9.20 miles leased to and operated by the Rochester Railway Company.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

		TRACK—CHARACTER AND LENGTH IN MILES.														
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Sur-face.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-ago rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
NEW YORK—Continued.																
95	Syracuse Rapid Transit.....	87.35	51.78	28.65	6.92	87.35				87.35			80.40	6.95		6.75
96	Syracuse and Suburban.....	18.08	15.71	1.98	.39	18.08				18.08			18.08			
97	Syracuse, Lake Shore and Northern.....	21.12	12.75	7.29	1.06	21.12				21.12			21.12			
98	Auburn and Syracuse.....	57.28	39.78	16.54	.96	57.28				57.28			54.93	2.45		1.72
99	Utica and Mohawk Valley.....	119.91	74.56	40.72	4.63	119.91				119.91			106.93	12.98	5.01	.85
100	Black River Traction.....	10.47	10.00		.47	10.47				10.47			10.47			
101	Elmira, Corning and Waverly.....	10.17	10.11		.06	10.17				10.17			10.17			10.17
NORTH CAROLINA.																
	Total for state.....	106.94	93.66	7.13	6.15	104.19		* 2.75		106.94			85.98	20.96		12.15
1	Asheville Electric.....	14.95	12.88	1.17	.90	14.95				14.95			14.95			
2	Asheville Rapid Transit.....	8.11	7.44		.67	8.11				8.11			6.70	12.41		2.25
3	Charlotte Electric Railway, Light and Power.....	18.50	13.86	4.14	.50	18.50				18.50			18.50			
4	Durham Traction.....	6.20	5.90		.30	6.20				6.20			6.20			
5	Fayetteville Street Railway and Power.....	1.25	1.25				(?)	1.25		1.25			1.25			1.25
6	Greensboro Electric.....	11.50	11.09	.32	.09	11.50				11.50			11.50			2.97
7	Laurel Park Street Railway.....	1.50	1.50				Steam.	1.50		1.50			1.50			.07
8	Raleigh Electric.....	7.02	6.27	.50	.25	7.02				7.02			7.02			.60
9	Salisbury and Spencer Railway.....	4.25	4.11		.14	4.25				4.25			4.25			
10	Tide Water Power.....	22.66	21.49		1.17	22.66				22.66			4.11	18.55		4.11
11	Fries Manufacturing and Power.....	11.00	7.87	1.00	2.13	11.00				11.00			11.00			1.00
NORTH DAKOTA.																
	Total for state.....	16.09	15.50		.59	16.09				16.09			16.09			
1	State of North Dakota.....	1.50	1.50			1.50				1.50			1.50			
2	Fargo and Moorhead.....	10.34	10.00		.34	10.34				10.34			10.34			
3	Grand Forks Transit.....	2.25	2.25			2.25				2.25			2.25			
4	Valley City Street and Inter-urban.....	2.00	1.75		.25	2.00				2.00			2.00			
OHIO.																
	Total for state.....	3,767.10	3,070.38	525.59	171.13	3,651.94		* 113.71	1.45	3,767.10			2,718.08	1,049.02	138.65	99.65
1	Northern Ohio.....	214.53	170.12	40.74	3.67	214.53				214.53			214.53			10.40
2	Stark Electric.....	34.42	32.42		2.00	34.42				34.42			34.42			
3	Ashtabula Rapid Transit.....	5.50	5.25		.24	5.50				5.50			5.50			
4	Pennsylvania and Ohio.....	26.62	26.00		.72	26.62				26.62			26.62			
5	Lake Erie, Bowling Green and Napoleon.....	20.00	19.00		2.00	20.00				20.00			20.00			.50
6	Cambridge Power, Light and Traction.....	9.53	9.17		.36	9.53				9.53			9.53			1.19
7	Chillicothe Electric.....	5.20	5.00		.20	5.20				5.20			5.20			
8	Cincinnati Traction.....	219.85	124.76	95.09		219.85				219.85			219.85			
9	Price Hill Inclined Plane.....	.61	.15	.46			Cable.	.61		.61			.61			
10	Cincinnati, Lawrenceburg and Aurora.....	39.39	32.14	6.00	1.25	39.39				39.39			39.39			
11	Cincinnati Northern Traction.....	85.27	60.11	9.71	6.45	85.27				85.27			85.27			7.20
12	Cincinnati and Columbus.....	56.00	53.00		3.00	56.00				56.00			56.00			1.00
13	Ohio Traction.....	36.06	23.54	12.52		36.06				36.06			36.06			
14	Cincinnati, Milford and Loveland.....	34.07	29.77	5.00	.30	34.07				34.07			34.07			15.28
15	Interurban Railway and Terminal.....	101.00	79.00	9.00	13.00	101.00				101.00			101.00			20.20
16	Cleveland Electric Railway.....	251.38	124.68	112.26	14.44	251.38				251.38			246.74	4.64		8.84
17	Low Fare Railway.....	.75	.75			.75				.75			.75			4.00
18	Montgomery Traction.....	23.00	23.00			23.00				23.00			23.00			
19	Eastern Ohio Traction.....	82.78	80.70		2.08	82.78				82.78			82.78			
20	Cleveland, Southwestern and Columbus.....	179.50	162.10	4.50	12.90	179.50				179.50			179.50			3.00
21	Cleveland, Painesville and Eastern.....	45.09	38.76	4.54	1.79	45.09				45.09			45.09			
22	Columbus, Urbana and Western.....	8.76	7.76	.75	.25	8.76				8.76			8.76			
23	Columbus, New Albany and Johnstown.....	6.20	6.10		.10	6.20				6.20			6.20			2.70
24	Columbus Railway and Light.....	128.39	70.75	52.92	4.72	128.39				128.39			128.39			13.74
25	Ohio and Southern.....	4.56	4.43		.13	4.56				4.56			4.56			4.56
26	Scioto Valley Traction.....	74.26	69.58		4.68	74.26	3d rail.	71.10		74.26			74.26			7.74
27	Columbus, Delaware and Marion.....	56.71	54.41		2.30	56.71				56.71			56.71			5.00
28	Ohio Electric Railway.....	493.00	450.26	13.52	20.22	493.00	Steam.	42.00		493.00			35.00	458.00	11.17	13.48
29	City Railway.....	33.55	15.01	15.02	3.52	33.55				33.55			33.55			.62
30	Peoples Railway.....	31.14	17.89	12.16	1.09	31.14				31.14			31.14			
31	Oakwood Street Railway.....	8.30	4.00	4.00	.30	8.30				8.30			8.30			

1 Leased from steam railroad.

2 Includes miles of track, as follows: Steam, 1.50; gasoline-motor, 1.25.

3 Gasoline motor.

4 Includes miles of track, as follows: Third-rail, 71.10; inclined-cable, 0.61; steam, 42.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Slide bracket.	Center pole.					
6.74		87.35		128	36	Girder, T, groove, full	14		51.78	42.37	9.41		17.54	34.24	48		95	
2.88		1.98	16.10	90	60	Girder, T, groove, full			15.71	2.65	13.06		1.84	13.87	53		96	
18.26		2.86	18.26	104	56	Girder, T, groove, full	3	1	13.83	8.37	6.46		2.56	11.27	22		97	
31.86		16.73	40.55	90	45	Girder, T, groove, full	3	2	39.91	19.03	10.23	10.65		39.91	52	5.50	98	
59.00		60.91	29.00	95	40	Girder, T, groove, full	10		74.56	64.11	10.45		3.99	70.57	59		99	
2.00		8.47	2.00	85	60	Girder, T, groove, full	2	1	10.00	4.00	6.00		1.00	9.00	52		100	
9.11		1.00	9.17	90	80	Girder, T, groove, full			10.11		10.11			10.11	45		101	
23.76	2.25	72.75	34.19				16	6	95.60	79.70	15.84			95.60				
2.34		12.61	2.34	70	40	T, girder			12.88	11.78	1.10			12.88	52		1	
8.11		18.50	8.11	60	40	T, girder			7.44	7.44				7.44	53		2	
		18.50		60	40	T, girder	2	2	13.86	12.61	1.25			13.86	32		3	
		4.50	1.70	72	60	T, girder	4		5.90	4.20	1.70			5.90	50		4	
		1.25		35	35	T, girder	1										5	
		11.50		80	58	T, girder	3	1	11.00	7.50	3.50			11.00	53		6	
.50		1.00	.50	40	35	T, girder		1	6.52	6.00	.52			6.52	50		7	
	1.25	5.77	1.25	80	30	Full groove, T			4.25	.75	3.50			4.25	48		8	
		1.40	2.85	60	40	Girder, T, groove, full	1		22.66	21.39	1.27			22.66	50		9	
12.61		9.45	12.61	72	45	T, girder	1		11.00	8.00	3.00			11.00	45		10	
	2.00	6.37	4.63	70	64	Girder, T, groove, full	4	2									11	
		14.09	2.00				3	5	13.50	12.48	3.02			1.35	14.15			
		1.50		45	45	T, girder			1.50	1.25	.25			1.50	54		1	
		10.34		70	48	T, girder	3	2	10.00	9.23	.77			8.65	53		2	
		1.25	1.00	30	30	T, girder			2.25	1.25	1.00			2.25	48		3	
		1.00	1.00	60	60	T, girder		2	1.75	.75	1.00			1.75	60		4	
1,617.61	30.61	1,363.30	2,403.90				368	206	3,008.71	1,102.73	1,885.60	20.18	\$371.19	\$2,635.40		2.18		
51.00		65.30	149.33	114	50	T, girder	4	6	178.83	68.05	105.19	5.50	1.00	177.83	52	.18	1	
30.92		3.50	30.92	90	65	Girder, T, groove, full	5	6	34.42	2.00	32.17	.25		34.42	53		2	
		5.59		65	52	Girder, T, groove, full	2	2	5.25	5.25				5.25	50		3	
.25		4.00	22.62	80	65	T, girder	4	2	25.90	4.00	21.90			25.90	59		4	
13.50		4.50	15.60	60	00	T, girder	5		18.00	4.50	13.50			18.00	60		5	
	2.91	4.90	4.63	72	60	Girder, T, groove, full	2		9.17	4.90	4.27			9.17	52		6	
		8.20		60	56	T, girder	1		5.00	5.00				5.00	52		7	
		219.85		119	62	T, groove, full, groove, flat	27	11	124.76	124.26	.50		130.78	4.00	59		8	
.61		.61		65	65	T, girder											9	
8.00		9.00	30.39	70	70	T, girder		3	32.14	7.00	25.14			32.14	52		10	
22.27		30.42	64.85	91	60	T, groove, girder	4	7	71.01	13.60	57.95		4.00	67.50	58		11	
50.00		3.00	53.00	70	70	T, flat, girder	1		53.00	3.00	50.00		1.00	52.00	52		12	
		30.00		91	60	T, flat, girder	2	6	23.54	13.54	10.00		.50	23.04	59		13	
29.00		3.00	31.07	90	60	T, girder	2		28.77	3.00	23.77			28.77	50		14	
50.00		13.00	84.00	70	70	T, girder	2	6	79.00	13.00	64.50	1.50	3.50	75.50	55		15	
12.63	.12	251.38		137	60	Girder, T, groove, full	43		127.10	114.10	10.00	3.00	111.44	15.66	55		16	
		.75		95	95	Girder, T, groove, full			.75	.75			.75		52		17	
		23.00		107	95	Girder, T, groove, full	1		23.00	23.00			23.00		52		18	
63.00			82.78	80	00	T, girder		1	82.78	2.08	80.70			82.78	54		19	
114.55		24.70	155.00	70	56	T, girder	10	13	102.10	24.50	137.60			102.10	63		20	
1.75		9.50	35.50	80	70	T, girder	4		38.76	34.28	3.00	1.50		38.76	58		21	
4.00		.75	8.61	70	70	T, half groove		2	8.61	.75	7.76		.25	8.26	52		22	
		3.17	3.03	60	60	T, full groove	3		6.20	2.00	4.20			6.20	52		23	
2.48		94.76	33.03	107	60	T, half groove, full groove	15	5	70.73	70.73			35.90	34.85	50		24	
			4.56	75	75	T, girder			4.56	.75	3.81			4.56	40		25	
71.60		12.63	61.63	70	70	T, girder	7		3.16	3.16				3.16	53		26	
43.85		6.65	50.06	70	45	T, girder	2		54.41	8.52	45.99			54.41	52		27	
265.33		35.60	457.40	91	56	T, girder	17	18	430.78	41.00	389.78		10.50	420.28	52		28	
		29.25	4.30	90	72	T, girder	5	4	17.79	15.49	2.30		15.15	6.61	49		29	
4.49		21.52	9.62	106	60	T, girder	7	5	17.89	15.75	.08	1.46	15.04	2.85	53		30	
		8.30		90	70	Girder, T, groove, full	1		4.00	4.00			4.00		50		31	

* 2.01 miles of construction supported by structures, etc.

* Inclined cable.

* Track on viaducts owned by city of Cleveland.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

		TRACK—CHARACTER AND LENGTH IN MILES.														
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under truck-age rights.	Con-structed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
OHIO—Continued.																
32	Dayton and Troy	46.30	33.30	12.00	1.00	46.30				46.30			32.50	13.80	4.00	
33	Dayton, Covington and Piqua	32.57	31.72		.85	32.57				32.57			32.57		4.08	
34	Dayton and Xenia	50.12	49.06		1.06	50.12				50.12			50.12		2.89	
35	Peoples Gas and Electric	4.08	4.00		.08	4.08				4.08			4.08			
36	Columbus, Magnetic Springs and Northern	17.37	17.36		.01	17.37				17.37			17.37		1.11	5.54
37	United Electric	2.13	2.00		.13	2.13				2.13			2.13			
38	East Liverpool Traction and Light	28.85	16.40	10.20	2.25	28.85				28.85			28.85			
39	Toledo, Fostoria and Findlay	33.08	32.60		.48	33.08				33.08			33.08		1.00	
40	Frement City Railway	2.20	2.20			2.20				2.20			2.20			.60
41	Lancaster Traction and Power	10.70	10.20		.50	10.70				10.70			10.70			
42	Lelanon and Franklin	10.84	10.80		.04	10.84				10.84			10.84			
43	Western Ohio Railway	110.95	107.21		3.74	110.95				110.95			110.95			
44	Lorain Street Railroad	23.00	16.60	5.60	.80	23.00				23.00			23.00			
45	Mansfield Railway, Light and Power	20.45	19.70		.75	20.45				20.45			20.45			.38
46	Cincinnati, Hamilton and Dayton	1.45	1.41		.04				1.45				1.45			
47	Mount Vernon Railway and Light	9.06	9.00		.06	9.06				9.06			9.06			3.00
48	San-lusky, Norwalk and Mansfield	33.30	32.75		.55	33.30				33.30			25.00	8.30	.25	8.25
49	Cleveland, Painesville and Ash-tabula	25.70	24.64		1.06	25.70				25.70			25.70		2.80	
50	Ohio River Electric	12.59	12.02		.57	12.59				12.59			12.59			
51	Portsmouth Street Railroad	13.38	11.00	2.18	.20	13.38				13.38			10.88	2.50		
52	Victory Park Railway	1.50	1.25		.25	1.50				1.50			1.50			
53	Salem Electric Railway	2.65	2.58		.07	2.65				2.65			2.65			
54	Springfield Railway	32.03	30.80	10.24	.99	32.03				32.03			32.03			
55	Springfield, Troy and Piqua	30.46	30.00		.46	30.46				30.46			30.46			
56	Washington Traction	13.00	12.50		.50	13.00				13.00			13.00		4.50	
57	Springfield and Xenia	18.50	18.00		.50	18.50				18.50			18.50		1.07	
58	Steubenville and Wheeling	16.30	16.03		.27	16.30				16.30			16.30			
59	Steubenville and East Liver-pool	17.25	15.75		1.50	17.25				17.25			17.25			
60	Electric Railway and Power	6.38	6.25		.13	6.38				6.38			6.38		.08	
61	Tiffin, Fostoria and Eastern	17.00	16.50		.50	17.00				17.00			17.00			
62	Toledo Railways and Light	115.48	77.80	32.61	5.07	115.48				115.48			115.48			
63	Toledo Urban and Interurban	55.06	51.00	2.25	1.81	55.06				55.06			13.00	42.06	3.50	
64	Toledo and Indiana	55.57	52.00		3.57	55.57				55.57			55.57		3.80	
65	Lake Shore	193.46	164.69	26.00	2.97	193.46				193.46			172.96	20.50	2.74	21.00
66	Maumee Valley Railways and Light	21.53	19.73		1.80	21.53				21.53			21.53		8.30	
67	Toledo, Port Clinton and Lake-side	54.35	52.60		1.75	54.35				54.35			52.35	12.00	2.68	2.00
68	Toledo and Western	83.89	74.91		8.98	83.89				83.89			83.89		6.80	.16
69	Toledo, Ottawa Beach and Northern	16.44	12.25	1.57	2.62	16.44				16.44			16.44		9.36	1.00
70	Wellston and Jackson Belt	28.00	17.50	1.00	8.00	28.00				28.00			28.00			
71	Youngstown and Southern	22.00	19.00		2.10	22.00				22.00			22.00			
72	Mahoning and Shenango	147.28	114.62	22.85	9.81	147.28				147.28			142.03	4.65		3.66
73	Southeastern Ohio Railway	15.36	14.44		.92	15.36				15.36			15.36			.28
OKLAHOMA.																
Total for state		100.44	82.09	7.47	3.97	100.44				100.44			100.44			28.53
1	Enid City Railway	7.80	7.26		.60	7.80				7.80			7.80			7.80
2	Guthrie Railway	6.50	6.30		.20	6.50				6.50			6.50			
3	Chickaw Railway	20.30	20.00		.30	20.30				20.30			20.30			
4	McKees Electric Traction	13.18	12.00		1.12	13.18				13.18			13.18			
5	Oklahoma Interurban Traction	3.10	3.00		.10	3.10				3.10			3.10			3.10
6	Oklahoma Railway	32.00	24.17	7.47	1.26	32.00				32.00			32.00			12.17
7	Shawnee-Pecanish Traction	11.20	11.00		.20	11.20				11.20			11.20			
8	Tulsa Street Railway	5.40	5.21		.19	5.40				5.40			5.40			5.40
OREGON.																
Total for state		253.41	169.28	50.07	25.06	252.34			1.02	253.41			253.41			19.28
1	Albany Street Railway	1.02	1.00		.02				1.02				1.02			
2	Actons Electric	5.10	5.00		.10	5.10				5.10			5.10			
3	Portland, Eugene and Eastern Railway	6.50	6.00		.50	6.50				6.50			6.50			6.50
4	Forest Grove Transportation	1.95	1.70		.25	1.95				1.95			1.95			.15
5	Portland General Electric (Oregon City division)	4.50	3.75		.75	4.50				4.50			4.50			
6	Portland Railway	120.36	73.18	47.43	5.75	120.36				120.36			120.36			3.79
7	Portland Railway, Light and Power	95.53	66.45	11.64	17.44	95.53				95.53			95.53			7.84
8	Portland General Electric (Salem division)	12.45	12.20		.25	12.45				12.45			12.45			

* Leased from steam railroad.

GENERAL TABLES.

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CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER		ELECTRIC-LINE CONSTRUCTION, MILES.							Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.			Poles to the mile, number.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
30.50	3.50	13.00	33.30	70	65	T.	1	9	33.30	17.00	16.30			33.30	53	32		
76		9.00	23.57	70	70	T.		7	31.72	5.00	26.72			31.72	52	33		
8.00		8.74	41.38	110	60	T, girder, full groove.	6	2	40.05	1.84	47.22		2.44	46.62	53	34		
12.95		4.06		48	36	T.		1	4.00	4.00				4.00	26	35		
		.98	16.39	70	00	T.			17.37	.98	16.39			17.37	53	36		
2.80	.85	2.13		62	47	T, girder.	1	1	2.00	2.00				2.00	40	37		
		25.20	3.05	85	52	Girder, T.	2	4	16.40	16.40				16.40	00	38		
29.83		3.25	29.83	60	00	T.	4		33.08	2.20	30.88			33.08	53	39		
25		1.00	1.20	80	00	T.	1		2.20	1.00	1.20			2.20	50	40		
5.00		5.70	5.00	80	38	T, girder.		1	10.20	4.20	6.00			10.20	43	41		
10.05		.75	10.09	60	60	T.	1		10.80	.75	10.05			10.80	52	42		
91.28		19.67	91.28	70	80	T.	18		110.95	19.67	91.28			110.95	52	43		
11.40		5.20	17.80	72	70	T, girder.	6	1	16.60	10.20	6.40			16.60	50	44		
11.00		8.70	11.75	70	56	Girder, T.	3	5	19.70	7.50	12.20			19.70	62	45		
		1.45		60	40	T, groove.										46		
.33		8.67	.39	70	60	Half groove, T.	4		9.00	8.00	1.00		.25	8.75	52	47		
30.00		3.00	30.30	70	60	T.	6		33.25	3.50	29.75			33.25	52	48		
21.64		2.00	22.70	70	70	T.	1		24.64	23.58		1.06		24.64	52	49		
3.60		5.75	6.84	60	00	T.		3	12.02	5.00	7.02			12.02	65	50		
3.50		6.20	7.18	70	48	T.	1	2	11.00	4.32	6.68			11.00	52	51		
.25			1.50	45	45	T.			1.38	.13	1.25			1.38	50	52		
.78		2.05		75	45	Girder.			2.58	2.58				2.58	50	53		
27.00		30.48	1.55	90	35	Girder, T.	14	10	20.80	20.80				20.80	53	54		
13.00		3.46	27.00	70	60	T.	2		30.46	3.46	27.00		.06	29.80	53	55		
17.50		.33	12.67	70	66	T.		1	13.00		13.00			13.00	53	56		
4.60		.60	18.00	70	70	T.		2	18.50		18.50			18.50	52	57		
1.75		2.25	14.05	88	52	T, girder.	2		16.03	2.75	13.28		.50	15.53	52	58		
		15.50	1.75	72	00	T.			15.75	15.00	.75			15.75	52	59		
.21		6.38		80	55	Girder, T.	1		6.25	3.25	2.90			6.25	52	60		
.50	11.50	4.50	12.50	75	60	Girder, T.	4	1	16.50	16.50				16.50	54	61		
42.50		104.55	10.03	90	60	T, girder.	15	20	77.80	70.82	6.98	.83	6.00	71.80	54	2.00		
47.67		8.50	48.56	72	60	T.	7	2	51.00	23.50	27.50			51.00	52	63		
105.00		8.50	67.07	70	70	T.	5	4	62.00	9.50	43.50			52.00	53	64		
	19.73	33.00	160.46	75	55	T, girder.	22	1	164.90	40.00	124.90			164.90	50	65		
50.35		21.53		60	45	T.	7	2	19.73	2.25	17.03	.45		19.73	50	66		
76.00		2.25	52.10	70	70	T.	5	1	58.10	27.50	25.60			58.10	50	67		
9.57		6.00	77.89	60	60	T.	8	2	78.91	6.00	71.91	1.00		78.91	50	68		
17.50			16.44	75	60	T.	3		12.25		10.51	1.74		12.25	50	69		
19.00		1.89	26.11	60	60	T, girder.	6	8	19.40	19.40				19.40	52	70		
51.33		1.00	21.00	70	70	T.	1		20.00	1.00	19.00		.50	19.50	56	71		
11.00		73.42	73.80	90	48	Girder, T.	14	12	114.62	64.62	50.00		14.00	100.62	50	72		
		3.00	12.36	70	70	T.	2	7	14.44	3.50	10.94			14.44	54	73		
21.63	9.05	68.01	31.43				7	20	90.29	62.79	25.47	12.03		90.29				
.30		7.86		65	60	Girder.	1	2	7.86	6.15	1.71			7.86	52	1		
	9.05	6.20	.30	65	65	T.	1	1	6.50	6.50				6.50	52	2		
		11.25	9.05	70	56	T.	1	6	20.30	2.60	17.70			20.30	60	3		
.30		7.00	6.19	60	60	T.		2	12.06	8.00	4.06			12.06	53	4		
15.73		2.00	1.10	70	45	Girder, T.	1	1	3.00	1.00	2.00			2.00	50	5		
5.10		23.40	9.50	70	65	T.	3	3	24.17	16.60	7.51			24.17	53	6		
		5.90	5.30	70	52	T.	1	2	11.00	6.48	4.52			11.00	52	7		
		5.40		60	00	Girder.		3	5.40	5.40				5.40	52	8		
86.94		170.44	73.97				17	11	182.20	135.32	46.68			182.20				
		1.02		30	25	T.										1		
		3.10		52	30	T, girder.			5.10	5.10				5.10	52	2		
		6.50		60	00	T.		2	6.00	6.00				6.00	58	3		
		1.95		40	40	Half groove.			1.95	1.95				1.95	44	4		
		4.50		56	30	T.			4.00	1.00	3.00			4.00	52	5		
10.05		116.31	10.05	95	30	T, girder, groove.	10	8	77.83	75.57	2.26			77.83	53	6		
76.80		31.70	63.83	104	40	Girder, T.	5		75.02	37.10	37.92			75.02	53	7		
.09		12.36	.09	40	25	T.	2	4	12.30	8.80	3.50			12.30	50	8		

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

		TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABREVIATED NAME OF COMPANY.	Main track.			Siding and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.		
		Total owned and leased.	First.	Second.			Kind.	Miles.										
PENNSYLVANIA.																		
	Total for state.....	3,621.12	2,904.21	545.34	171.57	3,490.94		1,130.18		3,607.83	7.67	5.62	1,811.98	1,809.14	28.61	146.24		
1	Lehigh Valley Transit.....	142.16	127.42	12.67	2.67	142.16				142.16			121.68	20.50	20	2.00		
2	Altoona and Logan Valley.....	49.91	39.83	6.45	3.63	49.91				49.91			49.91			1.71		
3	Pittsburg and Beaver.....	14.95	7.95	7.00		14.95				14.95			14.95			14.95		
4	Beaver Valley Traction.....	35.63	21.04	13.96	.63	35.63				35.63			32.12	3.51				
5	Patterson Heights Street Railway.....	4.34	.34			4.34				.34			.34					
6	Columbia and Montour.....	17.75	17.00		.75	17.75				17.75			17.75			.50		
7	Butler Passenger Railway.....	13.28	9.64	3.14	.50	13.28				13.28			13.28			3.43		
8	Pittsburg and Butler.....	34.00	33.00		1.00	34.00				34.00			34.00			33.00		
9	Carlisle and Mount Holly.....	7.75	6.75		1.00	7.75				7.75			7.75					
10	Chambersburg and Gettysburg.....	13.60	13.25		.35	13.60				13.60			13.60			.42		
11	Westside Electric Street Railway.....	1.19	1.14		.05	1.19				1.19			1.19		31	1.19		
12	Webster, Monessen, etc.....	8.64	7.81	.64	.19	8.64				8.64			8.64			.32		
13	Chester Traction.....	32.52	20.65		1.87	32.52				32.52				32.52				
14	Philadelphia and Chester.....	8.73	8.23		.50	8.73				8.73			8.73					
15	Carlisle Street Railway.....	1.00	1.00			1.00				1.00			1.00					
16	Philadelphia, Conestoga and Lancaster.....	6.70	6.00		.10	6.70				6.70			6.70					
17	Corry and Columbus.....	5.00	4.50		.50	5.00				5.00			5.00					
18	Blue Ridge Traction.....	7.34	6.91		.43	7.34				7.34			7.34					
19	Danville and Sunbury.....	1.70	1.70			1.70				1.70			1.70					
20	Westmoreland County Railway.....	7.12	7.00		.12	7.12				7.12			7.12					
21	Philadelphia and Easton.....	32.57	32.00		.57	32.57				32.57			32.57					
22	DuBois Traction.....	6.00	5.75		.25	6.00				6.00			6.00					
23	United Traction Street Railway.....	5.32	5.20		.12	5.32				5.32			5.32					
24	Bangor and Portland.....	8.55	8.46		.09	8.55				8.55			8.55					
25	Easton Transit.....	51.96	47.35	1.34	3.27	51.96				51.96			42.48	1.57	1.00			
26	Northampton Traction.....	24.00	21.38	.62	2.00	24.00				24.00			24.00					
27	Whitehall Street Railway.....	5.50	5.00		.50	5.50				5.50			5.50					
28	Pennsylvania and Maryland.....	7.12	7.00		.12	7.12				7.12			7.12			7.12		
29	Erie Traction.....	26.64	25.64		1.00	26.64				26.64			26.64		2.00	.70		
30	Conestoga and Erie.....	31.28	30.11		1.17	31.28				31.28			31.28		1.00			
31	Gettysburg Transit.....	9.76	9.50		.26	9.76				9.76			9.76					
32	Schuylkill Railway.....	28.00	27.00		1.00	28.00				28.00			28.00					
33	Pittsburg, McKeesport and Greensburg.....	29.72	26.03	1.91	1.78	29.72				29.72			29.72					
34	Danville and Bloomsburg.....	8.92	8.34		.58	8.92				8.92			8.92		1.40			
35	Hanover and Meshersstown.....	5.47	5.28		.19	5.47				5.47			5.47			1.41		
36	Central Pennsylvania Traction.....	70.32	51.75	14.79	3.78	70.32				70.32			70.32			1.80		
37	Lehigh Traction.....	19.55	17.39	1.21	.95	19.55				19.55			19.55					
38	Wilkes-Barre and Hazleton.....	29.86	28.56		1.30	29.86	34 rail.	29.86		29.86		.50	29.06	3.80	1.54			
39	Hummelstown and Campbells-town.....	8.30	8.15		.15	8.30				8.30			8.30					
40	Homestead and Mifflin.....	3.25	3.00		.25	3.25				3.25			3.25					
41	Juniata Valley Electric.....	1.68	1.62		.06	1.68				1.68			1.68			1.68		
42	Indiana County Street Railway.....	25.00	24.00		.80	25.00				25.00			25.00			7.00		
43	Jersey Shore Electric.....	5.17	4.54	.53	.10	5.17				5.17			5.17					
44	Jersey Shore and Antea Fort.....	1.75	1.50		.25	1.75				1.75			1.75					
45	Cambs Inland Plane.....	.34	.17	.17		.34	Cal'del.	.34		.34			.34					
46	Johnstown Passenger Railway.....	31.30	23.90	5.00	1.90	31.30				31.30			31.30					
47	West Chester, Kennett and Wilmington.....	20.00	20.00		.20	20.00				20.00			20.00					
48	Kittanning and Leechburg.....	9.00	8.75		.25	9.00				9.00			9.00			1.00		
49	Conestoga Traction.....	143.78	139.33		7.45	143.78				143.78			37.49	106.29		.68		
50	Lafayette Street Railway.....	5.00	4.85		.15	5.00				5.00			5.00					
51	Lebanon Valley Railway.....	22.08	21.47		.61	22.08				22.08			22.08					
52	Pittsburg and Allegheny Valley.....	9.00	8.75		.25	9.00				9.00			9.00					
53	Valley Traction.....	41.23	40.57		.66	41.23				41.23			33.15	8.05				
54	Lewistown and Reedsville.....	10.24	6.33	3.66	.25	10.24				10.24			10.24			1.10		
55	Susquehanna Traction.....	6.00	5.50		.50	6.00				6.00			6.00					
56	Lykens and Williams Valley.....	10.74	10.30		.44	10.74				10.74			10.74					
57	Oakdale and McDonald.....	4.65	4.00	.50	.15	4.65				4.65			4.65			4.65		
58	Highland Grove Traction.....	2.02	2.00		.02	2.02				2.02			2.02		2.00			
59	Pittsburg and Westmoreland.....	8.40	7.65		.75	8.40				8.40			8.40			4.00		
60	Lancaster and Southern.....	6.20	6.10		.10	6.20				6.20			6.20					
61	Carlton Street Railway.....	12.50	12.00		.50	12.50				12.50			12.50					
62	Meadville Traction.....	11.00	11.00			11.00				11.00			11.00					
63	Meadville and Cambridge Springs.....	16.20	16.10		.10	16.20				16.20			16.20		.90			
64	Lancaster and York Furnace.....	12.37	12.00		.37	12.37				12.37			12.37					
65	Lewistown, Milton and Watsonville.....	9.28	8.13		.15	9.28				9.28			9.28					
66	Montoursville Passenger Railway.....	5.50	5.30		.20	5.50				5.50			5.50					
67	Peoples Street Railway.....	8.75	8.50		.25	8.75				8.75			8.75					
68	Bucks County Electric.....	27.53	26.81		.72	27.53				27.53			27.53					
69	Schuylkill Valley Traction.....	57.08	55.45	.68	.65	57.08				57.08			57.08		57.08			
70	Montgomery Traction.....	13.96	13.40		.56	13.96				13.96			13.96		.50			
71	Montgomery County Rapid Transit.....	5.00	5.00		.00	5.00				5.00			5.00			5.00		

¹ Includes miles of track, as follows: Third-rail, 111.50; inclined-cable, 4.79; steam, 13.80.

² 38 mile of construction supported by structures, etc.

³ Exclusive of 0.11 mile used for counter-cable car.

⁴ 0.11 mile operated also by counter-cable.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.	Wooden poles.			Poles to the mile, number.
Owned by company.	Not owned by company.			Maximum.	Minimum.				Style of rail.	Total.	Span wire.	Side bracket.						Center pole.
927.64	214.12	1,863.66	1,757.66			3.10	555	313	2,906.11	2,000.73	837.80	7.58	*702.96	*2,202.75		242.50	
40.00		47.00	95.16	96	50	Girder, T.		2	127.98	110.10	17.88		2.00	125.92	55	1	
20.68		18.22	31.09	73	56	Girder, T.		8	39.83	28.09	8.71	3.03	1.00	28.83	53	2	
		14.95		117	73	Girder		1	7.95	7.95			6.55	1.40	53	3	
		35.63		117	40	Girder, T.		1	21.04	20.04	1.00			21.04	63	4	
.34		.34		34	34	T.			.34	.34				.34	63	5	
2.00		2.50	16.25	56	56	T.		2	17.75	13.75	4.00			17.75	44	6	
3.93		9.35	3.93	70	60	T, girder.			9.64	7.94	1.70			9.64	52	7	
20.00		4.00	30.00	75	75	T, girder.			33.00	1.00	32.00		.50	32.50	58	8	
7.00		1.30	6.45	70	70	T, girder.			6.75	6.75				6.75	52	9	
	9.00	4.25	9.35	60	60	Girder, T, groove.		2	12.25	4.18	9.07			13.25	52	10	
		1.19		90	90	Girder.			1.14	1.14				1.14	53	11	
	2.22	4.59	4.05	90	70	Girder, T.		1	7.81	5.79	2.02			7.81	53	12	
3.58		28.49	4.03	95	47	Girder, T.		5	30.65	16.65	14.00			30.65	61	13	
.20		2.00	6.73	70	70	T, girder.		1	8.23	4.09	4.17			8.23	52	14	
		1.00		90	90	Girder.			1.00	1.00				1.00	48	15	
4.00	1.00	1.60	5.10	85	70	Girder, T.		1	6.60	2.00	4.60			6.60	52	16	
			5.00	70	60	T.			4.50	1.50	3.00			4.50	52	17	
.45			7.34	60	60	T.		1	7.34	2.64	4.70			*7.21	53	18	
	.04	1.00	.70	80	60	T.			1.70	1.00	.70			*1.45	54	19	
2.00		2.29	4.83	73	70	T, girder.		5	7.00	2.29	4.71			7.00	52	20	
24.00		2.09	30.57	60	60	T.			32.00	.57	31.43			32.00	52	21	
2.30		3.80	2.20	70	70	Girder.		1	4.00	4.60	1.40			6.00	60	22	
5.00		.32	5.00	70	70	T.			5.32		5.32			5.32	65	23	
6.65		1.90	6.65	70	65	T.		2	8.46	1.81	6.65			8.46	50	24	
19.14		22.30	20.60	85	56	Girder, T.		17	47.50	18.05	29.54		1.30	46.29	55	25	
	20.00	4.00	20.00	80	60	Girder, T.		5	24.00	24.00			3.94	20.06	50	26	
5.50			5.50	70	70	T.			5.50	5.25	.25			5.50	50	27	
5.12		2.00	5.12	70	60	T.		3	7.00	1.66	5.34			7.00	55	28	
	10.00	2.00	24.64	70	50	Girder, T.		2	26.64	1.90	24.74		2.00	24.64	52	29	
13.12		4.92	26.36	60	60	T.		2	31.28	6.47	24.81		.76	30.52	53	30	
6.00		3.50	6.26	60	60	T.		1	9.50	3.50	6.00			9.50	45	31	
	11.00	17.00	11.00	70	50	T.		9	27.00	4.00	23.00			27.00	60	32	
13.93		6.01	23.71	90	60	T, girder.		6	26.03	21.93	4.10		.75	25.28	53	33	
3.00		1.00	7.92	62	60	T.		1	8.34	4.78	3.56			8.34	44	34	
.33		5.14	.33	80	40	T, girder.		3	5.47	4.72	.75			5.47	50	35	
.59	8.80	37.34	32.96	107	48	Girder, T, full groove, half groove.		6	51.75	51.75			18.50	33.25	53	36	
	9.70	3.00	16.35	85	60	T.		5	17.30	1.80	15.50			17.30	52	37	
24.76	3.80	2.00	27.46	95	66	T.	.50		8.15	5.11	3.04			8.15	52	38	
			8.30	70	70	Girder, T.			8.15					8.15	52	39	
		.50	2.75	73	73	Girder.			3.00	3.00				3.00	52	40	
		1.64		60	60	T, girder.			1.62	1.62				1.62	52	41	
23.00		2.00	23.00	70	60	Girder, T.		1	24.50		24.50		.75	23.75	60	42	
		2.30	2.47	73	60	Girder, T.			5.07	4.30	.77			5.07	60	43	
4.25		.25	4.50	68	68	T.			4.50	4.50				4.50	42	44	
	.34	1.34		40	40	T.										45	
10.00		11.80	19.50	97	78	Girder, T.		10	23.80	23.80				23.80	52	46	
17.40		3.20	17.40	70	56	Girder, T.		3	20.40	3.00	17.40			20.40	52	47	
2.00		3.00	6.00	90	70	Girder, T.		2	8.75	2.75	6.00			8.75	63	48	
56.33		29.31	114.47	90	45	Girder, T, groove.		10	143.78	118.70	25.08			143.78	50	49	
		1.00	3.94	90	70	T, girder.		3	4.65	1.82	3.02			4.85	50	50	
2.52		8.39	13.60	90	40	Girder, T.		1	21.47	7.78	13.69			21.47	44	51	
7.00		2.00	7.00	90	75	T.		10	8.75	3.00	5.75			8.75	52	52	
18.00	17.78	5.50	35.73	80	48	T, girder.		6	41.23	26.23	15.00			41.23	53	53	
		1.50	8.74	90	50	Girder, T.		4	6.66	3.66	3.00			6.66	43	54	
.75	2.25	3.00	3.00	70	45	Girder, T.		1	6.00	6.00				6.00	53	55	
		10.74		60	40	Full groove, T.			10.30	10.30				10.30	50	56	
.40		1.00	3.05	80	73	T, girder.			4.00	1.80	2.20			4.00	63	57	
		1.02	1.00	80	60	Girder, T.		1	2.02		2.02		1.02	1.00	58	58	
5.50		2.90	5.50	70	70	T, girder.		1	7.65	2.00	5.65			7.65	82	59	
			6.20	60	60	T.			6.10	6.10				6.10	34	60	
6.25		7.00	5.70	85	70	T, girder.		2	12.50	4.00	8.50			12.50	35	61	
		8.00	3.00	70	60	Girder, T.		2	11.00	8.50	4.50			11.00	56	62	
4.20		1.50	14.70	78	70	T, girder, half groove.			16.10	1.00	14.50			16.10	53	63	
	12.00		12.37	70	70	T.			12.00	12.00				12.00	52	64	
		3.30	6.08	60	60	T.		1	9.13	9.13				9.13	22	65	
		2.05	3.45	60	60	T.			5.30		5.30			5.30	22	66	
1.45	3.60	2.70	5.05	70	56	T.		1	8.75	4.00	4.75			8.75	35	67	
21.51		5.00	22.53	70	45	T, girder.		4	26.81	5.00	21.81			26.81	30	68	
2.75		10.00	47.00	90	60	T, girder.		5	55.45	22.37	33.08		9.00	46.45	52	69	
7.30		5.16	8.80	80	70	T, girder.		1	13.90	2.47	11.43			13.90	62	70	
5.00		1.00	4.00	75	75	T.			5.00	.75	4.25			5.00	53	71	

* 0.13 mile of construction supported by buildings.

† 0.25 mile of construction supported by bridge.

‡ Inclined cable.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Over-head trolley.	Other mechanical traction.		Animal.	Sur-face.	Elevated.	Sub-ways and tunnels.	Owned.	Leased.	Operated under track-agg. rights.	Con-structed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
PENNSYLVANIA—Cont'd.																
72	Citizens Traction.....	37.04	25.30	9.02	2.72	37.04				37.04			37.04			
73	Northern Cambria Street Rail- way.....	11.96	11.02		.94	11.96				11.96			11.96			
74	State Belt Electric Railway.....	18.00	18.00		1.00	18.00				18.00			18.00			
75	Philadelphia Rapid Transit.....	619.85	419.52	160.84	39.49	607.40	3d rail.	12.45		608.95	7.07	3.23		619.85		
76	Southwestern Street Railway.....	15.98	9.49	6.21	.28	15.98				15.98			15.98			
77	Philadelphia, Bristol and Tron- ton.....	17.63	16.78		.85	17.63				17.63			17.63			
78	Philadelphia and West Chester Hottelburg, Tacony and Frankford.....	30.28	27.97	8.46	2.85	39.28				39.28			26.00	13.28		2.85
79	Farmount Park Transportation Delaware County and Phila- delphia.....	16.38	15.63		.75	16.38				16.38			10.38		1.30	
80		8.90	8.60		.30	8.90				8.90			8.90			
81		14.70	13.70		1.00	14.70				14.70			9.74	4.96		
82	Philadelphia and Western.....	25.01	10.68	10.68	3.65	1.79	(?)	23.22		25.01			25.01			25.01
83	Centre and Clearfield.....	13.60	13.00		.60	13.60				13.60			13.60			
84	Montgomery and Chester.....	0.77	6.20		.37	6.77				6.77			6.77			
85	Pittsburg Railways.....	534.43	299.77	212.91	21.75	523.50	(?)	10.93		533.44		.99	62.99	471.44		8.31
86	St. Clair Incline Plane.....	.80	.40	.40			Cable ¹	.80		.80			.80			
87	Duquesne Incline Plane.....	.30	.15	.15			Cable ¹	.30		.30			.30			
88	Monongahela Incline Plane.....	.48	.24	.24			Cable ¹	.48		.48			.48			
89	West Penn Railway.....	113.09	104.28	5.21	3.60	113.09				113.09			113.09		4.94	
90	Pottstown and Reading.....	6.73	6.50		.23	6.73				6.73			6.73			
91	Pottstown and Northern.....	3.75	3.50		.25	3.75				3.75			3.75			
92	Pottsville Union Traction.....	40.90	37.50	1.60	1.80	40.90				40.90			33.10	7.80		
93	J. I. Traction.....	31.00	29.00		2.00	31.00				31.00			31.00			
94	United Traction.....	80.21	74.41	4.80	1.00	80.21				80.21			80.21			.33
95	Noversink Mountain Railway.....	8.70	8.50		.20	8.70				8.70			8.70			
96	Mt. Penn Gravity Railroad.....	8.00	7.80	.10	.10	2.50	Steam.	5.50		8.00			8.00			
97	Adelantown and Reading.....	42.10	34.00	4.00	3.50	42.10				42.10			27.50	14.60	5.00	
98	Olney Valley Railway.....	19.25	18.91		.34	19.25				19.25			19.25			
99	Waverly, Sayre and Athens.....	12.14	8.63	3.33	.18	12.14				12.14			12.14			1.38
100	Seranton Railway.....	81.55	71.03	6.82	3.70	81.55				81.55			47.63	33.92		
101	Lackawanna and Wyoming Valley.....	49.09	22.03	20.74	6.32	3.29	3d rail.	40.30		48.79		.90	4.40	43.39		.56
102	Shamokin and Mount Carmel... Shamokin and Edgewood.....	17.25	17.00		.25	17.25				17.25			17.25		1.00	
103		11.83	10.70		1.13	11.83				11.83			9.37	2.46		
104	Stroudsburg Passenger Railway Stroudsburg and Water Gap.....	2.75	2.70		.05	2.75				2.75			2.75			
105		4.20	4.10		.10	4.20				4.20			4.20			4.20
106	Sunbury and Northumberland... Eastern Pennsylvania Rail- ways.....	4.30	4.10		.20	4.30				4.30			4.30			
107		19.70	18.00		1.70	19.70				19.70			19.70			
108	Allegheny Valley Street Rail- way.....	20.20	19.40		.80	20.20				20.20			20.20			
109	Titusville Electric Traction.... Warren Street Railway.....	16.71	15.95		.76	16.71				16.71			16.71			
110		20.25	20.00		.25	20.25				20.25			20.25			
111	Warren and Jamestown.....	20.32	20.00		.32	20.32				20.32			20.32		1.00	
112	Washington and Carlisle.....	14.86	13.33	1.19	.34	14.86				14.86			14.86			
113	Chambersburg, Greencastle and Waynesboro.....	15.00	14.00		1.00	15.00				15.00			15.00			
114	West Chester Street Railway... Wilkes-Barre and Wyoming Valley.....	29.23	28.24		.99	29.23				29.23			29.23		.34	
115		74.18	59.30	9.87	5.01	74.18				74.18			23.13	51.05	1.01	
116	Wilkes-Barre, Dallas and Har- vey's Lake.....	13.12	11.84		1.28	13.12				13.12			13.12		3.50	
117	Vallantown Traction.....	3.70	3.60		.10	3.70				3.70			3.70			
118	South Side Passenger Railway... Williamsport Passenger Rail- way.....	1.95	1.85		.10	1.95				1.95			1.95			
119		9.00	8.50	2.00	.50	9.00				9.00			9.00			
120	East End Passenger Railway... Trouton, New Hope and Lam- bertville.....	2.93	2.83		.10	2.93				2.93			2.93			
121		12.75	12.00		.75	12.75				12.75			12.75		1.90	
122	York Railways.....	60.33	54.66	2.06	3.57	60.33				60.33			60.33			
RHODE ISLAND.																
	Total for state.....	419.92	329.18	58.05	34.69	419.92				419.92			140.97	272.95		5.75
1	Sea View Railroad.....	19.91	19.23		.68	19.91				19.91			19.91			
2	Newport and Providence.....	14.17	13.29		.88	14.17				14.17			14.17			
3	Rhode Island Company.....	316.90	241.50	45.82	29.58	316.90				316.90			43.95	272.95		5.75
4	New York, New Haven and Hartford.....	34.85	22.87	10.23	1.80	34.85				34.85			34.85			
5	Providence and Danielson..... Pawcatuck Valley Street Rail- way.....	27.71	26.09		1.62	27.71				27.71			27.71			
6		6.38	6.25		.13	6.38				6.38			6.38			
SOUTH CAROLINA.																
	Total for state.....	131.26	116.87	9.61	4.78	129.76			1.50	131.26			131.26			12.20
1	Anderson Traction.....	18.00	18.00		.00	18.00				18.00			18.00			12.20
2	Augusta and Aiken.....	23.18	23.00		1.32	23.18				23.18			23.18			
3	Charleston Consolidated Rail- way, Gas and Electric.....	39.23	28.13	7.50	6.00	39.23				39.23			39.23			

¹ Includes 22.90 miles third rail and 0.33 mile steam.² Includes 2.87 miles inclined cable and 8.00 miles steam.³ Inclined-cable.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAILROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
	18.42		10.20	26.84	85	55	Girder, T, trilly.	6	1	25.30	12.12	13.18			25.30	50		72
	7.32		4.64	7.32	70	70	T, girder.	5		11.06	2.15	9.81			11.96	50		73
	5.50		1.50	16.50	70	60	T.		3	16.40	2.40	14.00			16.40	51		74
	6.53		544.54	75.31	141	60	Girder, T.	182	65	459.01	445.60	13.35		434.38	24.63	44	235.55	75
	5.20		15.98		90	70	T, girder.	3		9.76	6.35	3.41		5.23	4.53	52		76
	3.20		4.00	13.03	80	50	Girder, T.	2	2	16.78	16.78			1.30	15.48	52		77
	11.67		4.48	34.80	70	58	Girder, T.	2	1	27.97	24.85	3.12			27.97	52		78
			16.38		70	60	Girder, T.	1	2	15.63	15.63				15.63	53		79
			8.80		90	90	T.			8.60	8.60			8.60		53	6.00	80
			3.00	11.10	85	45	Girder, T.			13.70	1.00	12.70			13.70	53		81
	25.01			25.01	80	80	T.			1.79	1.55	.24			1.79	48		82
	13.60			13.60	60	60	T.			13.60	2.00	11.60			13.60	52		83
	3.00		3.20	3.57	65	65	T.			6.20	2.50	3.70		1.50	4.70	45		84
	73.87		478.24	56.19	117	55	Girder, T, trilly, flat.	11	19	302.27	301.77		.50	199.14	103.13	56	.95	85
	.80		.80		60	60	T.											86
	.30		.30		45	45	T.											87
	.48		.48		80	40	T.											88
	73.57		29.12	83.97	107	40	T, girder.	31	21	104.28	87.53	16.75		2.50	101.78	50		89
			4.50	2.23	66	58	Girder, T.			6.50	2.00	4.50			6.50	45		90
	2.00		1.75	2.00	90	75	Girder, T.			3.50	3.50				3.50	50		91
			16.00	24.30	60	40	T, girder.	3	6	37.50	22.90	14.70			37.50	57		92
	.13	21.00	5.00	26.00	80	56	Girder, T.	11		29.00	29.00	9.00			29.00	50		93
	24.90	23.75	31.88	48.32	95	52	Girder, T.	4	6	74.41	71.41	3.00			74.41	53		94
	7.70		1.00	7.70	95	60	Girder, T.		2	8.50	1.80	6.70			8.50	53		95
	8.00			8.00	45	45	T.			2.50	2.50				2.50	40		96
	40.00		8.00	34.10	70	70	Girder, T.	1	2	34.60	31.60	3.00			34.60	52		97
	19.25			19.25	75	75	T.			18.21	18.21				18.21	53		98
		.15	12.14		80	42	T.	1		8.63	8.63				8.63	45		99
	1.65		9.41	72.14	80	60	T, girder.	92	45	71.63	58.36	12.67		1.12	69.91	53		100
	40.09		22.66	27.03	90	75	T.	16		3.59	1.79		1.60		3.39	66		101
		4.14	3.50	13.75	65	56	T, girder.		4	17.00	2.50	14.50			17.00	52		102
	.10	4.50	3.25	8.58	70	62	T, girder.	2	2	10.70	3.25	7.25	.20		10.70	52		103
			2.75		60	45	T.			2.70	2.48	.22			2.70	42		104
		3.10	.25	3.05	70	70	T.	1		4.10	.82	3.28			4.10	55		105
			3.50	.80	70	56	T.		3	4.10	3.80	.30			4.10	60		106
	16.00		3.70	16.00	60	56	T.	7	7	19.70	4.20	15.50			19.70	58		107
		.10	3.00	17.20	77	60	Girder.	1	4	19.40	10.40				19.40	52		108
	12.00		4.76	11.95	80	70	Girder.		2	16.71	4.76	11.95			16.71	50		109
	4.00		16.25	4.00	70	60	T, girder.	2	1	20.00	10.00				20.00	60		110
	15.32	4.00	2.50	17.82	70	70	T.		1	20.00	11.64	8.36			20.00	52		111
	5.13		9.73	5.13	107	70	Girder, T.	1	1	13.33	9.93	3.41		.08	13.25	52		112
	4.00		4.00	11.00	70	70	T, girder.	3		14.00	2.50	11.50			14.00	52		113
	18.97	4.67	4.00	24.63	73	45	T, girder.	14	3	28.24	5.00	23.24			28.24	52		114
	6.00	.50	67.17	7.01	100	41	T, girder.	1	19	50.30	46.80	3.50	2.00		50.30	54		115
	13.00		2.00	11.12	60	60	T.			11.84	4.17	7.67			11.84	65		116
		2.00	1.10		73	50	T, girder.	1	1	3.40	3.40				3.40	54		117
		1.80	.15		65	65	Girder, T.			1.85	1.85				1.85	54		118
		.25	9.00		90	55	T, girder.	1		7.00	7.00				7.00	54		119
			1.00	1.33	73	55	T, girder.			2.83	2.83				2.83	52		120
	10.50		1.50	11.25	95	80	T, girder.			12.00	9.20	2.80		1.00	11.00	48		121
	.20	19.97	40.16	20.17	100	48	Half groove, full groove, T, girder.	4	2	54.68	33.68	10.00			54.68	52		122
	104.81	2.44	252.21	167.71				28	5	329.31	164.29	165.02		27.80	301.51			
	19.17		.74	10.17	60	56	T.	1	2	19.23	18.23	1.00			19.23	56		1
	2.47		2.57	11.60	95	60	Girder, T.			13.29	3.20	10.09		2.00	11.29	53		2
	38.00	2.31	239.02	77.88	140	48	Full groove, T.	27	3	241.50	126.80	114.70		25.40	216.10	52		3
	33.53		3.50	31.35	75	75	T.			22.82	12.93	9.89			22.82	58		4
	11.64			27.71	60	60	T.			26.09		26.09			26.09	65		5
		.13	6.38		50	50	Girder, T.			6.38	.13	6.25		.40	6.98	40		6
	56.57	1.63	67.94	63.32				13	10	116.03	53.81	61.84	.38	2.38	113.65			
	11.92		6.74	11.92	70	56	Girder, T.		1	18.66	8.00	10.66			18.66	42		1
	23.10		1.99	23.10	70	60	T.	4	1	23.86	4.75	19.11			23.86	48		2
		1.63	34.60	1.63	100	40	T, half groove, full groove.	2	5	28.13	26.60	1.53		1.10	27.03	52		3

* Includes 3.80 miles leased from steam railroad.

* Includes 1.78 miles leased from steam railroad.

* Includes 0.50 mile leased from steam railroad.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

		TRACK—CHARACTER AND LENGTH IN MILES.														
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-agt. rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
SOUTH CAROLINA—Cont'd.																
4	Columbia Electric Street Railway, Light and Power.	21.46	19.28	2.11	.07	21.46				21.46			21.46			
5	Greenville Traction.	12.23	11.21		1.02	12.23				12.23			12.23			
6	Rock Hill Water, etc., Light and Railway.	1.50	1.50					1.50		1.50			1.50			
7	Spartanburg Railway, Gas and Electric.	16.00	14.80		1.11	16.00				16.00			16.00			
SOUTH DAKOTA.																
	Total for state.	5.00	4.50		.50	5.00				5.00			5.00			5.00
1	Sioux Falls Traction.	5.00	4.50		.50	5.00				5.00			5.00			5.00
TENNESSEE.																
	Total for state.	297.50	198.90	77.48	21.12	296.02	Cable ¹	.88		297.50			297.50			12.25
1	Bristol Belt Line	4.75	4.50		.25	4.75				4.75			4.75			1.00
2	Chattanooga Railway	43.24	30.24	8.00	5.00	43.24				43.24			43.24			2.00
3	Clarksville Railway and Light.	3.60	3.50		.10	3.60				3.60			3.60			
4	Jackson Railway and Light.	7.50	7.00		.50	7.50				7.50			7.50			3.00
5	Johnson City Traction.	4.10	4.00		.10	4.10				4.10			4.10			
6	Knoxville Railway and Light.	39.25	30.35	7.34	1.56	39.25				39.25			39.25			1.75
7	Lookout Mountain Railway.	5.00	4.75		.25	5.00	Cable ¹	.88		5.00			5.00			
8	Memphis Street Railway.	109.59	62.56	42.14	4.89	109.59				109.59			109.59			4.50
9	Nashville Railway and Light.	78.47	50.00	20.00	8.47	78.47				78.47			78.47			
TEXAS.																
	Total for state.	414.87	335.23	58.34	21.30	405.82		12.25	6.80	414.87			414.87		8.93	24.73
1	Austin Electric Railway.	15.21	12.14	2.23	.84	15.21				15.21			15.21			
2	Beaumont Traction	12.25	12.00		.25	12.25				12.25			12.25			
3	Bonham Electric Railway, Light and Power.	2.50	2.50			2.50				2.50			2.50			
4	Corpus Christi Transit.	4.20	3.75		.45	4.20				4.20			4.20			
5	Dallas Consolidated.	41.56	28.41	10.52	2.63	41.56				41.56			41.56		1.30	4.61
6	Metropolitan Street Railway.	5.96	5.63	1.94	.39	5.96				5.96			5.96		6.18	
7	Rapid Transit.	11.45	5.91	5.02	.52	11.45				11.45			11.45		1.45	.52
8	Denison and Sherman.	16.25	16.00		.25	16.25				16.25			16.25			
9	Denton Interurban Railway and Power Plant.	3.33	3.00		.33	3.33				3.33			3.33			3.33
10	El Paso Electric Railway.	25.95	24.57	.48	.90	25.95				25.95			25.95			
11	Citizens Railway and Light.	15.61	15.00		.61	15.61				15.61			15.61			
12	Northern Texas Traction.	74.61	61.52	7.20	5.89	74.61				74.61			74.61			5.80
13	Galveston Electric.	33.49	23.18	9.27	1.04	33.49				33.49			33.49			
14	Houston Electric.	45.50	38.00	4.37	2.73	45.50				45.50			45.50			
15	Laredo Electric and Railway.	7.09	6.84		.25	7.09				7.09			7.09			
16	Longview and Junction.	.86	.75		.11	.86			.80	.86			.86			
17	Mineral Wells and Lakewood Park.	2.25	2.00		.25	2.25	(1)	2.25		2.25			2.25			1.00
18	Paris Transit.	5.25	5.10		.15	5.25				5.25			5.25			
19	San Antonio Traction.	57.14	39.42	16.40	1.32	57.14				57.14			57.14			9.37
20	Seguin Traction.	1.20	1.20			1.20			1.20	1.20			1.20			
21	Belton and Temple Traction.	14.29	12.20		2.09	14.29				14.29			14.29			
22	Citizens Railway.	14.29	13.09	.91	.29	14.29				14.29			14.29			
23	Waxahatche Street Railway.	4.74	4.62		.12	4.74			4.74	4.74			4.74			
UTAH.																
	Total for state.	122.54	92.79	33.40	6.25	122.54				122.54			114.79	7.75		5.80
1	Ogden Rapid Transit.	21.25	19.45	1.50	.50	21.25				21.25			13.50	7.75		
2	Salt Lake and Utah Valley.	3.04	3.00		.04	3.04				3.04			3.04			
3	Utah Light and Railway.	98.25	60.34	31.00	5.72	98.25				98.25			98.25			5.80
VERMONT.																
	Total for state.	124.31	116.81	.97	6.83	124.31				124.31			124.31			11.25
1	Barre and Montpelier.	9.20	9.19		.01	9.20				9.20			9.20			
2	Bellevue Falls and Saxtons River.	6.54	6.25		.29	6.54				6.54			6.54			
3	Bennington and North Adams.	29.15	27.47		1.68	29.15				29.15			29.15			11.20
4	Twin State Gas and Electric.	5.00	4.00		.90	5.00				5.00			5.00			
5	Burlington Traction.	12.00	11.00		1.00	12.00				12.00			12.00			
6	Rutland Railway, Light and Power.	24.11	23.50		.61	24.11				24.11			24.11			
7	St. Albans Street Railway.	13.50	12.90		.60	13.50				13.50			13.50			
8	Springfield Electric.	8.32	6.58	.67	1.15	8.32				8.32			8.32			
9	Mount Mansfield Electric.	11.25	10.50		.75	11.25				11.25			11.25			
10	Military Post Street Railway.	5.24	5.00		.24	5.24				5.24			5.24			

¹Inclined-cable.

GENERAL TABLES.

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CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by under-ground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
11.40		10.00	11.40	80	45	T.....	2		19.28	3.00	10.28		.90	18.38	20		4	
		7.11	5.12	60	60	T.....	3	2	11.21	7.46	3.37	.28	.38	10.63	25		5	
		1.50		25	20	T.....		1									6	
10.00		6.00	10.00	65	60	T.....	1		14.80	4.00	10.80			14.80	55		7	
		5.00						1	5.00	4.50		.50		5.00				
		5.00		70	60	T.....		1	5.00	4.50		.50		5.00	32		1	
23.30	.40	208.91	88.69				30	31	203.52	167.08	31.55	4.80	.88	202.64		10.00		
		4.75		67	40	T, girder	1	2	4.75	4.75				4.75	44		1	
7.00		22.00	21.24	80	60	T.....	6	4	35.24	28.24	7.00			35.24	52		2	
		4.40	1.20	56	40	T.....		1	5.50	5.50				5.50	44		3	
		6.00	1.50	56	45	T.....	3		7.00	6.93	.03			7.00	50		4	
	.40	3.60	1.50	70	70	T.....		2	4.00	4.00				4.00	52		5	
3.21		25.12	14.13	107	40	Girder, T, groove, T.		8	30.35	26.18		4.19		30.35	52		6	
4.75		4.12	.88	56	40	T.....			4.12	2.12	2.00			4.12	32		7	
8.24		11.71	37.88	109	60	T, girder	20	14	62.56	49.38	12.50	.70	.88	61.68	55		8	
		67.21	11.20	96	35	Girder, T.			50.00	40.00	10.00			50.00	42	10.00	9	
54.60	.40	343.92	70.95				33	162	386.40	270.42	61.50	4.54	2.11	334.35				
		15.21		72	45	T.....		3	12.98	10.27	2.05	.66	.66	12.32	52		1	
		12.25		60	60	Girder, T.		11	12.00	12.00				12.00	52		2	
		2.50		60	35	T.....		1	2.50	2.50				2.50	53		3	
		4.20		91	30	T.....		1	3.75	3.75				3.75	44		4	
2.05		40.21	1.35	95	40	T, full groove.	1	22	28.41	24.41			1.45	26.96	41		5	
.58		5.98		78	78	T.....	5		3.63	3.63				3.63	41		6	
2.50		11.45		95	45	T, full groove.	17		5.91	5.91				5.91	41		7	
8.25		8.00	4.25	70	60	T.....	22		16.25	16.25				16.25	53		8	
		2.00	1.33	60	60	T.....	3		2.00	2.00	1.00			3.00	50		9	
		22.29	3.66	90	35	Groove, T.	1	17	24.57	19.70	4.87			24.57	50		10	
		15.50		52	52	T.....		2	15.00	8.00	7.00			15.00	60		11	
30.58		41.23	33.38	95	35	Girder, T, full groove.	5	11	67.42	35.79	28.00	3.83		67.42	52		12	
		23.49		00	45	T.....		5	23.18	18.58	4.60			23.18	46		13	
.19	.07	38.40	7.10	96	40	T, half groove.	19	14	38.40	32.40	6.00			38.40	49		14	
		7.09		40	30	T.....	1		7.09		6.51	.25		7.09	52		15	
	.33	1.75	.50	35	28	T.....	1	1									16	
		4.75	.50	72	56	T.....		1	5.25	5.25				5.25	50		17	
1.20		52.13	5.01	98	60	T, full groove.	6	10	60.74	39.60	1.14			60.74	53		18	
		1.20		36	36	T.....											19	
8.00		6.29	8.00	00	60	T.....	7		13.29	13.29				13.29	53		20	
.15		12.51	1.75	00	30	T.....	6		13.00	13.00				13.00	45		21	
		4.74		20	16	T.....	5										22	
																	23	
2.80		108.29	14.25				2	22	82.83	31.88	25.80	25.15	2.08	80.75		1.50		
1.00		13.50	7.75	60	30	T, girder			19.25	19.25				19.25	42		1	
.38		2.50	.54	42	30	T.....		2	3.00	2.00	1.00			3.00	45		2	
1.42		92.29	5.96	80	30	Girder, T, half groove, full groove.	2	20	90.58	10.63	24.80	25.15	2.06	58.50	44	1.50	3	
37.28	.36	55.84	68.47				10	8	120.31	58.70	60.75	.80		120.31		.12		
		6.04	2.26	60	00	T, girder		5	9.19	5.00	4.19			9.19	50		1	
1.80	.11	1.79	4.75	60	00	T.....			6.25	6.25				6.25	44		2	
13.86		6.00	23.15	80	50	T, girder	1	1	29.15	2.00	27.15			29.15	50		3	
.17	.25	5.00		60	48	T.....		1	4.50	4.25	.25			4.50	50	.12	4	
16.00		11.00	1.00	60	48	T.....	5		11.00	4.00	7.00			11.00	42		5	
		6.79	17.32	60	00	T.....			23.50	23.50				23.50	60		6	
.20		3.25	10.25	60	60	T.....	4		12.00	3.25	9.65			12.00	50		7	
2.25		1.58	6.74	60	56	T.....			8.32	.20	7.26	.86		8.32	50		8	
3.00		8.25	3.00	60	60	T.....			10.50	10.00	.50			10.50	45		9	
		5.24		60	00	T.....		1	5.00	.25	4.75			5.00	52		10	

* Gasoline motor.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRACK—CHARACTER AND LENGTH IN MILES.														
		Total owned and leased.	Main track.		Sidings and turn-outs.	Overhead trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under trackage rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
VIRGINIA.																
	Total for state.....	515.54	385.17	100.47	29.90	512.26	Com'd	3.28		515.54			456.30	59.24	6.04	34.23
1	Washington Arlington and Falls Church	25.83	24.74		1.09	25.83				25.83			25.83			
2	Charlottesville and Albemarle	3.45	3.15		.30	3.45				3.45			3.45			
3	Danville Railway and Electric	6.72	5.42	.97	.33	6.72				6.72			6.72			.21
4	Hampton Roads Traction	12.19	7.16	2.45	2.58	12.19				12.19			12.19			
5	Lynchburg Traction and Light	13.99	11.75	2.00	.24	13.99				13.99			13.99			
6	Citizens Railway, Light and Power	5.02	4.43	.44	.15	5.02				5.02			5.02		3.30	
7	Newport News and Old Point Railway and Electric	24.35	19.30	5.65		24.35				24.35			24.35		1.00	
8	Norfolk City and Suburban	3.58	3.50		.08	3.58				3.58			3.58			
9	Norfolk and Southern	60.79	45.06	4.95	10.78	60.79				60.79			60.79		1.74	3.31
10	Norfolk and Ocean View	13.90	10.67	2.95	.37	13.90				13.90			13.90			
11	Norfolk and Atlantic Terminal	20.54	10.43	9.42	.69	20.54				20.54			20.54			.50
12	Norfolk and Portsmouth Traction	104.39	76.63	25.91	2.45	104.39				104.39			18.27	456.12		8.02
13	Radford Water Power	2.63	2.63			2.63				2.63			2.63			
14	Richmond and Chesapeake Bay	15.46	14.80		.66	15.46				15.46			15.46			14.80
15	Virginia Passenger and Power	18.14	14.63	2.47	1.04	18.14				18.14			15.02	45.12		
16	Richmond Passenger and Power	54.95	39.92	12.16	2.87	54.95				54.95			54.95			.32
17	Richmond Traction	21.44	10.98	8.78	1.68	21.44				21.44			21.44			.07
18	Richmond and Petersburg Electric	22.65	21.13		1.52	22.65				22.65			22.65			
19	Roanoke Railway and Electric	21.64	19.68	1.55	.41	21.64				21.64			21.64			
20	Blue Ridge Light and Power	5.25	5.00		.25	5.25				5.25			5.25			
21	Tazewell Street Railway	2.00	1.97		.03	2.00				2.00			2.00			
22	Washington, Alexandria and Mt. Vernon	28.20	18.70	7.50	2.00	28.20	Com'd	2.90		28.20			28.20			
23	Great Falls and Old Dominion	28.34	14.19	13.87	.28	28.02	Com'd	.32		28.34			28.34			7.00
WASHINGTON.																
	Total for state.....	761.73	563.48	125.86	72.39	693.23		471.50		761.73			744.80	19.93	12.17	167.08
1	Grays Harbor Railway	11.60	9.80		1.80	11.60				11.60			11.60			4.20
2	Whitman County Railway	18.21	15.21	.91	2.09	18.21				18.21			18.21			.47
3	Puget Sound International Railway	19.93	18.29	1.41	.23	19.93				19.93				19.93		
4	Olympia Light and Power	4.42	3.80	.28	.38	4.42				4.42			4.42			
5	Loyal Railway	1.75	1.75			1.75				1.75			1.75		.10	.25
6	Seattle Everett Interurban	15.75	10.50	2.25	3.00	15.75				15.75			15.75			2.60
7	Seattle Electric	155.00	96.92	45.85	12.23	111.67	Cable	13.89		155.00			155.00		.71	39.37
8	Seattle, Renton and Southern	19.50	12.75	6.25	.50	19.50				19.50			19.50			
9	Washington Water Power	96.21	67.45	26.31	1.45	96.21				96.21			96.21			9.20
10	Spokane and Inland Empire	222.19	175.46	14.24	32.49	222.19				222.19			222.19			101.26
11	Tacoma Traction	16.32	15.32		1.00	16.32				16.32			16.32			6.26
12	Puget Sound Electric	64.57	34.37	10.91	15.69	55.11	Cable	56.46		64.57			64.57		9.12	5.70
13	Tacoma Railway and Power	104.54	83.61	17.45	3.48	102.89	Cable	1.65		104.54			104.54		1.74	.67
14	Walla Walla Valley Traction	17.68	17.09		.59	17.68				17.68			17.68			
WEST VIRGINIA.																
	Total for state.....	266.41	247.78	9.25	9.43	249.11				266.41			255.22	11.19	1.07	7.75
1	Bluestone Traction	3.85	3.77		.08	3.85				3.85			3.85			
2	Kanawha Valley Traction	11.15	11.01		.14	11.15				11.15			11.15			
3	Farmington and Cokesburg	42.12	42.13		.29	42.12				42.12			42.12			
4	Camden Interstate Railway	32.26	32.26			32.26				32.26			32.26			2.23
5	Martinsburg Light and Power	2.00	2.00			2.00				2.00			2.00			
6	Union City	6.13	5.75		1.00	6.13				6.13			6.13		2.00	
7	Saverton Railway	3.17	3.00		.17	3.17				3.17			3.17			
8	Newport Street Railway	2.60	2.16		.44	2.60				2.60			2.60			.32
9	Warrenton and Taylor Railway	12.03	10.45		1.48	12.03				12.03			12.03			
10	Parkersburg, Marlinton and Interurban	33.89	32.21		1.79	33.89				33.89			33.89			
11	Tri-State Traction	8.00	7.50		.50	8.00				8.00			8.00			
12	City Railway	10.71	10.56		.15	10.71				10.71			10.71			
13	Wheeling Traction	52.85	49.81	1.75	1.29	52.85				52.85			52.85		1.01	5.32
14	City and Elm Grove	28.50	18.50	7.50	2.50	28.50				28.50			28.50			
15	Pan Handle Traction	17.14	16.71		.43	17.14				17.14			17.14			
WISCONSIN.																
	Total for state.....	590.65	416.22	154.46	19.97	590.65				590.65			590.65		1.47	85.85
1	Wisconsin Traction, Light, Heat and Power	19.58	18.94		.64	19.58				19.58			19.58			
2	Ashland Light, Power and Street Railway	6.80	6.70		.10	6.80				6.80			6.80			
3	Beloit Traction	5.60	5.56		.04	5.60				5.60			5.60		1.04	5.00
4	Milwaukee Northern	32.90	28.55	3.30	1.05	32.90				32.90			32.90			32.90

10.32 mile of construction supported by buildings.

* Includes 0.32 mile leased from steam railroad.

* Leased from steam railroad.

* Includes miles of track, as follows: Third-rail, 50.41; street-cable, 15.04; steam, 6.05.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK CHARACTER AND LENGTH IN MILES—Continued.						Miles of sub-way or tunnels occupied by trucks.	STEAM-RAIL-ROAD CROSS-INGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Pro- tected.	Unpro- tected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maxi- mum.	Mini- mum.					Total.	Span wire.	Slide bracket.	Center pole.					
218.71	9.08	220.22	286.32				57	31	397.40	243.78	125.43	18.19	119.95	1367.13		3.28		
23.83		1.00	24.83	67	45	T	1		25.06	16.82	8.24			124.74	52		1	
		1.60	1.85	83	50	T, full groove.	3		3.45	1.60	1.85			3.45	50		2	
		4.08	2.64	85	60	Girder, T	1	2	5.42	5.42				5.42	44		3	
2.08		10.11	2.08	90	60	Girder, T	1		7.16	2.45	4.71			7.16	52		4	
		7.25	6.74	107	35	T, girder.		1	11.75	11.75				11.75	40		5	
		5.02		90	70	Girder, T			4.33	4.33				4.33	52		6	
10.00	5.68	10.60	13.75	105	45	Girder, T	2		19.30	17.30	2.00		1.20	17.80	52		7	
			3.58	58	58	T		1	3.58	3.58				3.58	52		8	
49.57		10.76	50.03	90	60	T, girder	3		45.06	5.54	33.35	6.17		45.06	53		9	
3.37		8.02	3.37	90	50	Girder, T, full groove.	1	1	10.67	9.07	1.00			10.67	52		10	
9.55		10.99	9.55	90	60	Girder, T, full groove	1		10.43	9.43		1.00		10.43	52		11	
29.52		74.87	29.52	90	40	Girder, T, full groove.	4		75.03	62.03	8.00	6.00	1.00	75.03	50		12	
		2.63		46	48	T			2.63	2.63				2.63	40		13	
14.82		.90	14.56	80	60	T		1	15.10		15.10		.53	14.57	44		14	
4.65	2.87	9.54	8.56	90	50	Girder, T	4		14.63	8.03				14.63	44		15	
3.55		24.00	30.95	100	50	Girder, T	23	7	39.92	29.17	9.15	1.60	8.14	33.78	44		16	
.02		21.42	.02	100	60	Girder, full groove, T.	3	4	10.98	7.66		3.32	10.28	.70	46		17	
11.08		.38	22.27	90	60	Girder, T.	3		22.65		22.65			22.65	54		18	
4.45		13.06	6.58	72	50	T	4	9	19.48	12.30	7.38			19.68	46		19	
.50		4.50	.75	62	32	Girder, T	1		5.00	5.00				5.00	40		20	
.02		1.53	.47	45	45	T			2.00	1.00	1.00			2.00	52		21	
20.30	1.23	6.00	22.20	97	57	Groove, T, trolley.	2	5	18.70	15.70	3.00		.50	18.20	52	2.90	22	
27.54	.20	.32	28.02	90	70	T, full groove.			13.87	13.77		1.0		13.87	55	.32	23	
330.54	14.38	444.81	319.92				38	68	327.96	350.74	166.79	.43	2.82	525.14		2.90		
.50		11.00		60	60	T	1	2	9.80	9.05	.75			9.80	42		1	
3.26		16.81	1.40	73	40	T		8	15.21	15.01	.20			15.21	60		2	
6.02	.38	13.79	6.14	90	60	T			18.20	11.67	6.62			18.20	52		3	
.15	.10	4.00	.42	60	30	T		1	3.86	2.52	1.34			3.86	50		4	
	.50	1.75		50	50	T			1.75	1.75				1.75	50		5	
9.50		3.25	12.50	50	52	T			10.50	10.50				10.50	50		6	
4.62		155.06		80	40	T	17	10	90.28	70.28	20.00		2.25	88.01	50	2.90	7	
6.50		13.00	6.50	71	40	T		1	12.75	6.23	6.50			12.75	50		8	
21.55		72.00	21.55	70	30	T	4	20	67.95	58.95	9.00			67.95	52		9	
100.82		60.79	161.49	70	60	T	5	5	175.46	63.46	112.00			175.46	55		10	
9.00		7.25	9.00	72	60	T	1		16.32	16.32				16.32	57		11	
55.35		9.97	52.29	70	40	T, girder.	5	4	5.11	3.80		.43		5.11	45		12	
28.50		71.19	41.35	72	30	T, groove, girder.	5	5	83.61	74.11	9.50			83.61	42		13	
	13.40	4.28	13.40	72	58	T		6	17.00	17.00			.57	16.23	45		14	
40.15	3.00	134.37	132.04				22	53	248.37	161.76	86.61		6.50	241.87				
		3.85		70	58	T			3.77	2.77	1.00			3.77	52		1	
		11.15		74	60	Girder, T	1	2	11.15	9.15	2.00			11.15	50		2	
1.00		10.63	31.79	80	56	T, girder		2	42.13	26.38	15.75			42.13	52		3	
3.50		23.38	8.90	70	55	Groove, T	4	20	32.26	20.26	3.00			32.26	52		4	
.12	1.00	.88	1.12	60	60	T			2.00	2.00				2.00	52		5	
	2.00	4.13	2.00	70	70	T, girder.			5.13	4.25	.88			5.13	52		6	
3.00		3.17		70	56	T			3.00	3.00				3.00	52		7	
		2.40		90	60	T, girder.	2		2.16	2.16				2.16	54		8	
		3.50	8.53	60	80	Girder, T	4	4	10.95	3.50	7.45			10.95	60		9	
16.00		17.80	16.00	70	60	T	4	3	32.21	15.21	17.00		2.00	30.21	56		10	
1.50		.02	7.98	70	56	T	1		8.00	7.50	.50			8.00	52		11	
		10.71		90	90	Girder		1	10.56	10.56			2.00	8.56	40		12	
3.28		40.94	11.91	95	50	Girder, T	5	15	49.81	34.52	15.29			49.81	52		13	
6.00		3.50	25.00	65	65	Girder, T	2		18.50	10.00	8.50		2.30	16.00	40		14	
3.75		1.50	15.04	85	85	T	1		16.74	1.50	15.24			16.74	62		15	
174.45	.25	332.35	216.30				72	80	435.53	303.41	128.42	3.70	59.70	375.83		146.47		
8.50		10.35	9.21	90	60	T	8	13	18.04	18.84	.10			18.04	52		1	
		6.80		60	48	T		6	6.80	6.80				6.80	52		2	
		5.60		60	45	T	2		5.66	5.66				5.66	52		3	
27.78		3.75	29.13	95	70	T	5		28.55	7.70	20.85		3.25	25.30	55		4	

* Includes 6.19 miles leased from steam railroad.

† Includes 50.41 miles third rail and 6.05 miles steam.

‡ Includes 4.34 miles not leased but operated by Wheeling Traction Company for Wheeling and Western Railway Company.

STREET AND ELECTRIC RAILWAYS.

TABLE 184.—ROADBED, TRACK, AND ELECTRIC

TRACK—CHARACTER AND LENGTH IN MILES.																
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total owned and leased.	Main track.		Stidings and turn-outs.	Over-head trolley.	Other mechanical traction.		Animal.	Surface.	Elevated.	Subways and tunnels.	Owned.	Leased.	Operated under track-age rights.	Constructed and opened for operation during the year.
			First.	Second.			Kind.	Miles.								
WISCONSIN—Continued.																
5	Chippewa Valley Railway, Light and Power.	22.57	22.00		.57	22.57				22.57			22.57			
6	Eastern Wisconsin Railway and Light.	24.67	21.46	2.04	1.17	24.67				24.67			24.67		.43	
7	Green Bay Traction.	40.80	37.82	2.02	.96	40.80				40.80			40.80			
8	Janesville Street Railway.	5.09	4.86		.23	5.09				5.09			5.09			
9	Kenosha Electric Railway.	5.70	5.50		.20	5.70				5.70			5.70			1.12
10	La Crosse City Railway.	14.66	11.57	2.73	.36	14.66				14.66			14.66			1.43
11	La Crosse and Oshkosh.	2.67	2.67			2.67				2.67			2.67			
12	Southern Wisconsin Railway.	12.86	10.72		2.14	12.86				12.86			12.86			
13	Manitowoc and Northern.	8.84	8.71		.13	8.84				8.84			8.84			
14	Merrill Railway and Lighting.	1.55	1.48		.07	1.55				1.55			1.55			
15	Milwaukee Electric Railway and Light.	126.95	60.50	58.81	7.64	126.95				126.95			126.95			3.09
16	Milwaukee Light, Heat and Traction.	183.06	98.01	82.02	3.03	183.06				183.06			183.06			38.79
17	Winnebago Traction.	40.10	39.15	.67	.28	40.10				40.10			40.10			.49
18	Sheboygan Light, Power and Railway.	25.48	22.93	2.05	.50	25.48				25.48			25.48			
19	Waupun Electric Light and Railway.	4.95	4.75		.20	4.95				4.95			4.95			
20	Wausau Street Railroad.	5.82	4.34	.92	.56	5.82				5.82			5.82			2.43
OUTLYING DISTRICTS.																
		43.83	37.98	1.52	5.23	40.70			3.13	43.83			43.83			
HAWAII.																
	Total for territory	26.11	23.10		3.01	26.11				26.11			26.11			
1	Honolulu Rapid Transit and Land.	26.11	23.10		3.01	26.11				26.11			26.11			
PORTO RICO.																
	Total.	17.72	13.98	1.52	2.22	14.29			3.13	17.72			17.72			
1	Tramway Stock.	3.13	1.52	1.52	.09				3.13	3.13				3.13		
2	Ponce Railway and Light.	4.72	3.75		.97	4.72				4.72				4.72		
3	San Juan Light and Transit.	9.87	8.71		1.16	9.87				9.87				9.87		

¹1.12 miles of construction supported by structures, etc.

²0.37 mile of construction supported by structures, etc.

³0.75 mile of construction supported by structures, etc.

CONSTRUCTION, BY COMPANIES: 1907—Continued.

TRACK—CHARACTER AND LENGTH IN MILES—continued.						Miles of sub-way or tunnels occupied by tracks.	STEAM-RAIL-ROAD CROSSINGS, NUMBER.		ELECTRIC-LINE CONSTRUCTION, MILES.						Poles to the mile, number.	Miles of street occupied by underground conduits for mains or feeders.	Number.	
On private right of way.		Within city limits.	Outside city limits.	Weight of rails per yard.			Style of rail.	Protected.	Unprotected.	Overhead trolley.				Steel, iron, or concrete poles.				Wooden poles.
Owned by company.	Not owned by company.			Maximum.	Minimum.					Total.	Span wire.	Side bracket.	Center pole.					
8.00		14.00	8.57	70	60	T....	1	8	22.00	12.00	10.00		1.00	21.00	45	5		
20.00		11.97	12.70	83	60	Girder, T....	2	5	24.47	22.47	2.00		1.00	23.47	50	6		
18.22		19.49	21.31	85	40	Girder, T. groove.	2	7	38.78	2.98	35.80			38.78	52	7		
		5.09		35	35	T....	2	1	4.86	4.86				4.86	44	8		
		5.70		85	85	Girder	18		5.50	5.50	.14			5.50	53	9		
		14.06		70	45	T, girder	1	8	11.57	11.57		1.80		9.77	60	10		
.74		1.92	.75	35	25	T....			2.67	.07	2.00			2.67	42	11		
		12.86		73	55	T....	7	10	12.86	12.86		1.25		11.61	53	12		
1.50		4.46	4.38	80	60	T....		5	8.71	4.46	4.25	.50		8.21	52	13		
		1.55		38	38	T....			1.48	1.48				1.48	32	14		
		126.95		95	45	Girder, T....	4	11	68.14	67.09	1.05		43.00	25.08	46	15		
81.95		51.58	121.48	95	45	Girder, T....	7	8	101.04	81.35	15.99	3.70	5.00	96.04	55	16		
		18.24	21.86	90	48	T....	9	6	40.10	17.62	22.48		2.00	38.10	42	17		
7.00		11.20	14.28	80	45	T....	4	1	22.93	13.93	9.00		.84	22.09	52	18		
	.25	1.34	3.61	50	50	T....			4.75	1.50	3.25			4.75	52	19		
		4.84	.96	70	60	T....			5.82	4.31	1.51			5.82	52	20		
3.29		40.54	3.29				2	4	37.97	17.84	20.13			126.85				
		26.11								23.38	16.53	6.85		*23.01	54			
		26.1		110	83	Girder				23.38	16.53	6.85		*23.01	54	1		
3.29		14.43	3.29				2	4	14.59	1.31	13.28			*13.84				
		3.13		18	18	T....	1									1		
		4.72		60	60	T....	1	1	4.72		4.72			4.72	53	2		
3.29		6.58	3.29	85	35	T, girder		3	9.87	1.31	8.56			*9.12	44	3		

STREET AND ELECTRIC RAILWAYS.

TABLE 185. CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.											LOCOMOTIVES, ELEVATORS AND STEAM.			
		Aggregate.	Passenger.						Express, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweepers and sprinklers.	Motor cars.	Trailers.	Kind.	No.
			Combination.					Parlor, sleeping, dining, and private.								
			Total.	Closed.	Open.	Closed and open.	Passenger and express, etc.									
UNITED STATES.....		81,641	70,016	40,352	22,537	6,442	567	118	5,669	5,011	1,883	1,062	68,874	14,767		1209
ALABAMA.																
Total for state.....		596	488	313	169	6			35	73			414	182	Steam	3
1	Anniston Electric and Gas.....	26	24	13	11					2			26			
2	Birmingham Railway, Light and Power.....	272	203	148	55				25	44			159	113		
3	Alabama City, Gadsden and Attalla.....	8	6	6					1	1			8			
4	Huntsville Railway, Light and Power.....	9	9	7	2								7			
5	Mobile Light and Railroad.....	144	121	80	33	2			1	22			112	32		
6	Montgomery Traction.....	67	64	29	31	4				3			60	7		
7	North Alabama Traction.....	18	18	9	9								18			
8	Selma Street and Suburban.....	30	27	7	20				2	1			13	17		
9	Sheffield Co.....	11	10	5	5				1				11			
10	Birmingham and Gulf Railway and Navigation.....	11	6	3	3				5					11	Steam	3
ARIZONA.																
Total for territory.....		27	27	5	7	15							24	3		
1	Douglas Street Railway.....	8	8	2	3	3							5	3		
2	Phoenix Railway.....	12	12	1	4	7							12			
3	Prescott and Mt. Union.....	2	2	2									2			
4	Tucson Rapid Transit.....	5	5			5							5			
ARKANSAS.																
Total for state.....		212	202	99	86	17			1	7		2	195	17		
1	Citizens Electric.....	8	8	2	6								8			
2	Fort Smith Light and Traction.....	41	40	19	21					1			41			
3	Hot Springs Street Railway.....	31	30	16		14						1	31			
4	Little Rock Railway and Electric.....	85	81	40	41					3		1	72	13		
5	Citizens Light and Transit.....	28	27	12	15				1				27	1		
6	Suburban Rock Railway.....	2	1	1					1				2			
7	Texarkana Gas and Electric.....	15	13	7	3	3				2			11	1		
8	Walnut Ridge and Hoxley.....	2	2	2									2			
CALIFORNIA.																
Total for state.....		3,740	2,406	453	106	1,915	22	10	971	383			2,475	1,285		123
1	Santa Catalina Island Co.....	2	2		2									2		
2	Power, Transit and Light.....	7	7	4	3								7			
3	Northern Electric.....	449	38	20	2	9	7		408	3			25	424		49
4	Coronado Railroad.....	8	8	1	4	3							4			
5	Humboldt Transit.....	16	16		1	15							16			
6	Fresno Traction.....	18	17	2	2	13				1			16	2	Elec.	1
7	Nevada County Traction.....	5	4		4					1			5			
8	Los Angeles Electric Incline.....	2	2	2										2		
9	Observation Tower Co.....	2	2	2										2		
10	Los Angeles Railway.....	514	480		38	442				34			484			
11	Pacific Electric.....	151	104	14	7	72	11		34	13			119	32	Steam	2
12	Los Angeles Pacific.....	423	170	17		151			112	141			144	239	Steam	3
13	Los Angeles Interurban.....	516	269		11	256			289	7			269	247	Elec.	1
14	Monterey and Pacific Grove.....	10	10		3	7							10			
15	Vallejo, Benbow and Napa Valley.....	19	5		2	3			5	9			5	14		
16	Oakland Traction.....	261	217	7	5	204	1			44			236	25	Elec.	1
17	San Francisco, Oakland and San Jose.....	58	57										57			
18	Ontario and San Antonio Heights.....	4	3			3			1				3			
19	Santa Clara Interurban.....	6	3			3				3			3			
20	El Pas de Robles Street.....	3	3	3									3			
21	Petaluma and Santa Rosa.....	68	12	10	2				56				10	58	Elec.	4
22	Los Angeles and Redondo.....	115	28			26	2		103	4			32	103		
23	East Shore and Suburban.....	17	16	4	1	11				1			16	1		
24	Riverdale and Armatron.....	13	12			12							10	3		
25	Sacramento Electric, Gas and Railway.....	51	46		2	44				5			47	4		
26	San Bernardino Valley Traction.....	19	15	1	2	11	1		3	1			15	4		
27	San Diego Electric.....	39	35	2	1	32				4			39			
28	South Park and East Side.....	4	4		2								4			
29	Geary Street, Park and Ocean.....	30	30			30							30			
30	California Street Cable.....	24	24			24							24			
31	Presidio and Ferries.....	5	5			5							5			
32	United Railroads of San Francisco.....	686	622	293	3	340		6	1	63			686		Elec.	1
33	San Jose Railway.....	17	16			16							17			
34	San Jose and Santa Clara County.....	65	34	2	11	21				31			27	38		
35	San Jose-Los Gatos Interurban.....	24	18	18					2	4			21	3		
36	Santa Barbara Consolidated.....	10	8			8				2			10			
37	Union Traction.....	22	21	1	5	15				1			18	4		
38	South San Francisco Railroad and Power.....	3	3	3									3			
39	Stockton Electric.....	19	19			19							19			
40	Central California Traction.....	21	14			14			1	6			15	6	Elec	1
41	Pacific Railroad and Steamship.....	14	7			7			6	1			4	10		

1 Includes 117 electric and 92 steam.
2 Includes 15 electric and 8 steam.

3 Inclined-cable cars.
4 Includes 1 electric and 3 steam.

5 Includes 2 inclined-cable cars.
6 Includes 60 cars equipped with pilots.

EQUIPMENT, BY COMPANIES: 1907.

EQUIPMENT OF CARS.											NUMBER OF—					Miles of tele- phone line ex- clusively for oper- ation of road.	Number			
Motor equipments for motor cars.					With tenders.	With brakes.			Heated.			Lighted.			Car houses.			Lamps for lighting of- fices, power shops, car ways, etc.		
Total.	One mo- tor.	Two mo- tor.	Three mo- tor.	Four mo- tor.		Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.				Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor)
64,378	642	46,521	422	16,793	58,925	78,384	31,664	3,803	43,906	31,379	12,527	73,877	72,992	885	1,764	14,835	816,150	1,052	14,546	
405	10	263	3	129	247	498	121		471	164	7	518	512	6	14	58	12,005			1
26		5			18	26						24	24		1	25	500			1
154		56		103	151	196	76		148	148		228	228		2	10	3,500			2
8		7			15	4	4		8	6		7	7		1		80			3
7		7			14	9			5			7	7		1		75			4
112	10	86		16	7	130	16					124	124		3	10	2,000			5
60		56		4	58	67	8					66	66		1		3,500			6
9		9			13	18			5	5		18	18		1		300			7
13		13			13	27			5	5		27	27		2	4	1,500			8
11		5		6	13	11	11		5	5		11	11		1	9	500			9
						10	6		2		2	6		6	1		50			10
24	8	16			11	27	10		2	2		27	27		4		135			
5		5			2	8	5					8	8		1		20			1
12	8	4			4	12						12	12		1		55			2
2		2			2	2			2	2		2	2		1		10			3
5		5			5	5	5					5	5		1		50			4
182	6	166		10	103	207	32		111	100	2	209	207	2	9	80	6,000	300	9	
8		8			19	5			2	2		8	8		1		150			1
29		28			41	41			19	19		41	41		1	20	1,050	300	2	2
31	6	25			31	31			26	26		31	31		2	10	485			3
71		65			73	81	47		40	40		84	84		2	25	375			4
27		27			27	27			12	12		27	27		1	25	2,000			5
						2						2		2						6
14		11		3	13	15	5		10	10		14	14		1		1,000			7
2		2			2	2			2		2	2	2		1		6			8
2,387	19	1,296	4	1,068	2,380	3,250	2,230	833	380	280		2,588	2,493	95	68	341	22,360	20	1,129	
7	4	3			7	7						7	7		1	1	10			1
25		9		16	38	38	32		26	26		38	38		2	14	900			2
4		4			4	8	6					8	8		1		35			3
16		16			16	16						16	16		1		100			4
16	3	13			15	15	1					16	16		1	3	500			5
4				4	4	4		4	4	4		4	4		1		30			6
												2	2			1	40			7
												2	2				15			8
494		476		18	494	514	464	12	51	51		494	494		5	88	2,447			9
119		59		60	106	151	122	7	154	154		126	118	8	4	17	2,119			10
184		116		69	194	421	281		154	154		200	200		2	27	3,190			11
209		90		179	285	516	462	30	131	131		288	288		2		410			12
10		10			10	10						10	10		2	1	20			13
6				5	11	19	19		3	3		7	7		1	6	75			14
236		175		61	233	261	34					233	233		4	65	1,075			15
27		18		9	33	56	57					58	58		1	40	650			16
3	1	2			3	3	1					3	3		1		30			17
2		3			3	3		3				3	3		1		25			18
						3									1					19
10				10	70	68	68		9	9		12	12		1		150			20
22		4		28	32	134	134					34	34		1	8	330			21
16		9		7	15	4	11					15	15		1	5	450			22
10		10			10	8						12	12		1		20			23
47	3	44			47	47		44				47	47		2	20	1,510			24
15		14		1	15	15	10					15	15		3	2	500			25
39		38		1	35	39	1					39	39		1		75			26
4		4			4	30			2	2		4	4		1		24			27
						24						24			1		20			28
						24						24			2		132			29
						5						5			2		37			30
653		78		575	653	653	462	686				660	653	33	14	12	6,557			31
17	6	11			17	17						16	16		1		80			32
27		18		9	26	65		18				34	34		2	23	225			33
21		9		12	24	3	21					24	24		1		130			34
10	2	8			8	8	2					8	8		1		25			35
18		18			22	22		5				22	22		1	8	40			36
3		3			3	3						3	3		1					37
19		19			19	19	18					19	19		1		150			38
15		10		5	15	21	21					15	15		1		40			39
4					4	14	14					9	9		1		35			40

* Equipped with pilots.

* Cable-grip cars.

* Includes 33 cable-grip cars.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.											LOCOMOTIVES, ELECTRIC AND STEAM.			
		Aggregate.	Passenger.					Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprin-klers.	Motor cars.	Trail-ers.	Kind.	No.	
			Total.	Closed.	Open.	Combination.										
						Closed and open.	Parlor, sleep-ing, dining, and private.									
COLORADO.																
	Total for state.....	631	474	243	91	138	2	68	45	10	4	422	209		43	
1	Boulder Electric Light and Power.....	14	13	9	4				1			11	3			
2	Colorado Springs and Interurban.....	71	67	34	30	3			2	2		58	13			
3	Colorado Springs and Cripple Creek.....	11	10	10					1			7	4			
4	Denver City Tramway.....	364	316	173	37	105			38	6	4	279	85			
5	Denver and Inter-Mountain.....	6	6	6								4	2			
6	Denver and Northwestern.....	98	(1)					98				5	93	Steam	2	
7	Durango Railway and Realty.....	7	6	4	2					1		7				
8	Denver and South Platte.....	(1)	(1)													
9	Manitou Electric Railway and Casino.....	3	3	1	2							3				
10	Pueblo and Suburban Traction and Lighting.....	49	45		16	29			3	1		40	9			
11	Trinidad Electric.....	8	8	6			2					8		Elec.	1	
CONNECTICUT.																
	Total for state.....	1,550	1,278	579	602	4	4	99	51	100	21	1,395	155			
1	Bristol and Plainville Tramway.....	32	28	10	18				1	3		31	1			
2	Danbury and Bethel Street Railway.....	44	39	18	21				3		2	32	12			
3	Hartford and Springfield Street Rail-way.....	53	46	19	27				3	4		42	1			
4	Groton and Stonington Street Rail-way.....	20	18	8	10			1	1			20				
5	Farmington Street Railway.....	22	14	8	6			5	1	1	1	19	3			
6	New York, New Haven and Hartford Railroad.....	1,329	1,113	503	605	2	3	67	40	91	18	1,219	110			
7	New London and East Lyme Street Railway.....	10	9	3	5		1			1		10				
8	Norwich and Westerly Railway.....	35	8	8				26	1			10	25			
9	New York, New Haven and Hartford Railroad (New Canaan branch).....	5	4	2		2			1			2	3			
DELAWARE.																
	Total for state.....	212	197	103	92		2	1	8	1	5	212				
1	Odessa and Middletown Railway.....	2	2	1	1							2				
2	Peoples Railway.....	61	57	30	20		1		2		2	61				
3	Wilmington City Railway.....	129	122	62	50		1		4		3	129				
4	Wilmington, New Castle and Southern Railway.....	20	16	10	6			1	2	1		20				
DISTRICT OF COLUMBIA.																
	Total for district.....	1,259	1,190	663	521	5		1	7	32	3	854	405	Elec.	1	
1	Anacostia and Potomac River.....	64	60	32	3	5					4	54	10			
2	Brightwood Railway.....	5	2	2						1	2	5				
3	Georgetown and Tennallytown.....	3							1		2	2	1			
4	Capital Traction.....	586	570	291	279			4	5		7	322	264			
5	Washington Railway and Electric.....	554	522	292	239		1	3	14	1	10	424	130	Elec.	1	
6	City and Suburban of Washington.....	47	35	36					9	1	2	47				
FLORIDA.																
	Total for state.....	221	189	56	124	8	1	23	6		1	182	70			
1	Amelia Beach Co.....	6	5		5				1			2	4			
2	Fort Meade Street Railway.....	2	1		1			1					2			
3	Jacksonville Electric.....	62	60	36	23	1			2			50	3			
4	North Jacksonville Street Railway, Town and Improvement.....	6	6	2	2	2						6				
5	Key West Electric.....	10	9		9						1	10				
6	Pensacola Electric.....	47	35	10	22	3		10	2			28	19			
7	St. Johns Light and Power.....	4	4		1	2	1					4				
8	St. Petersburg and Gulf.....	8	7	2	5			1				7	1			
9	Tampa and Sulphur Springs Traction.....	10	9		9			1				9				
10	Tampa Electric.....	60	53	6	47			12	1			57	9			
GEORGIA.																
	Total for state.....	618	549	348	194	7		33	35		1	532	86			
1	Athens Electric Railway.....	14	12	8	4				2			12	2			
2	Georgia Railway and Electric.....	245	234	196	38			1	10			245				
3	Atlanta Northern Railway.....	9	6	6				2	1			8	1			
4	Augusta Railway and Electric.....	70	59	28	31				10		1	56	14			
5	Columbus Railroad.....	44	41	13	21	7		1	2			40	4			
6	Covington and Oxford.....	4	3	2	1			1					4			

1 Includes 1 electric and 2 steam.

2 Wheel and truck guards.

3 Passenger cars owned by Denver City Tramway Co.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.														NUMBER OF—				Miles of tele- phone line ex- clusively for oper- ation of road.	Number.
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of- fices, power houses, shops, car houses, ways, etc.				
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fenders.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.		Oil, gas, etc.	Arc.	Incandes- cent.			Other (Nernst vacuum vapor).
418	15	268	4	131	395	625	283	4	361	327	34	505	505		13	174	8,808	45	37
11	11				11	14			9		9	14	14		1	4	180		1
55		14		41	69	89	41		37	37		69	69		1	70	300		2
7				7	11	10			10	10		10	10		1	5	75		3
279		216	4	59	269	364	132	1	257	242	15	345	245		4	40	5,115		4
4					4	6			6	6		4	4		1		3		5
5				5	98	98									1		125		6
6	4	2			2	6			4		4	6	6		1		10		7
3		3			3	3		3	1	1		3	3						8
40		23		17	29	48			29	29		46	46		2	50	2,500	45	9
8		6		2	8	8	2		8	8		8	8		1	5	500		10
2,240		2,063	2	175	1,235	1,095	735		682	673	9	1,401	1,401		54	150	10,737	2	11
28		28			29	29			10	10		28	28		1		250		1
29		27	2		27	44	22		18	15	3	44	44		2	5	110		2
45		5		40	40	40			19	17	2	49	49		2	7	715		3
20		1		19	18	20	18		5	8		20	20		1		175		4
17		5		12	17	22	12		8	8		17	17		3		750		5
2,060		1,994		86	1,113	908	621		604	604		1,220	1,220		42	105	7,903	2	6
10		1		9	9	10	9		4		4	10	10		1	2	165		7
9				9	9	9	9		7	7		9	9		1	31	664		8
2		2			2	4	4		4	4		4	4		1		5		9
208	4	198	2	4	141	208	11	2	107	105	2	212	212		8	46	790		
2		1		1	2	2			1	1		2	2		1				1
61		50	2		60	60			31	31		61	61		2		200		2
129		126		3	124	129	11		65	63	2	129	129		3	46	523		3
10	4	12			17	17		2	10	10		20	20		2		65		4
808		799	7	2	834	1,238		174	572	570	2	1,231	1,222	9	15	44	5,083	34	
50		49		1	60	60			47	47		60	60		1	9	106		1
2		2			2	2			2	2		2	2		1		20		2
2		2			3	3			2	2		2	2		1		71		3
297		290	7		315	589		174	169	167	2	586	577	9	6	35	3,000		4
413		412		1	413	543			318	318		537	537		4		2,276	29	5
44		44			44	44			36	36		44	44		2		210	5	6
181	17	137		27	64	186	41		196	196		196	196	1	10	43	3,477		5
2	2				5	2			5	5		5	5		1		3		1
59		44		15	60	14			60	60		60	60	1	1				2
6	3	3			6				6	6		6	6		1	4	1,000		3
9	7	2			9				9	9		9	9		1		350		4
28	4	19		5	34	13			37	37		37	37		1	6	270		5
4		4			4				4	4		4	4		1	2	50		6
7		7			8				8	8		8	8		1		60		7
9		9			1	8			9	9		9	9		1		600		8
57	1	49		7	53	57	6		57	57		57	57		1	31	1,064		9
532	33	426		73	245	601	91		218	218		578	570	8	16	204	7,637		10
12	2	10			12	4			8	8		12	12		1		300		1
245		192		53	245	53			196	196		245	245		3	115	1,139		2
8				8	9				6	6		9	9		1		100		3
56		40		6	70	2			3	3		64	64		2	50	754		4
40					44				4			40	40		1	4	2,000		5
					4				4			4		4	2				6

* Cars owned by Denver City Tramway Co.

* Equipped with pilots.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.		
		Aggregate.	Passenger.			Combination. Closed and open.	Parlor, sleep- ing, dining, and private.	Ex- press, freight, and mail.	Work and miscel- laneous.	Snow- plows.	Sweep- ers and sprink- lers.	Motor cars.	Trail- ers.	Kind.	No.	
			Total.	Closed.	Open.											
GEORGIA—Continued.																
7	Gainesville Electric Railway.....	11	10	3	7				1			7	4			
8	Macon Railway and Light.....	60	50	31	28				1			54	6			
9	Rome Railway and Light.....	14	12	7	6				1			14				
10	Savannah Electric.....	136	104	50	54			26	6			92	44			
11	Valdosta Street Railway.....	7	6	2	4				1			4	3			
12	Washington Street Railway.....	4	2	2				2					4			
IDAHO.																
Total for state.....		28	22	9	11	2		6				23	5	Steam	1	
1	Boise Railroad.....	12	12	9	3							12		Steam	1	
2	Boise and Interurban Railway.....	16	10		8	2		6				11	5	Steam	1	
ILLINOIS.																
Total for state.....		9,330	7,240	5,152	2,058	17	20	13	1,384	407	162	117	5,562	3,798		117
1	Alton, Granite and St. Louis.....	50	42	40	2					8			45	5		
2	Alton, Jacksonville and Deoria.....	4	4	3			1						4			
3	Front Grangers Refrigerating and Power.....	4	3	2			1			1			3	1	Steam	1
4	Aurora, DeKalb and Rockford.....	15	4	4					9	2			4	11		
5	Bethesda City Railway.....	2	2	2									2			
6	Bloomington and Normal.....	30	28	12	12	4			1			1	29	1		
7	Deoria, Bloomington and Champaign.....	38	10	10				28					10	28		
8	Calumet Electric and Traction.....	23	20	7	9	1				1	2		18	5		
9	Illinois Central Electric Railway.....	10	8	4	4					2			4	6		
10	Central and Central City.....	5	5	5									3	2		
11	Chicago and Champaign.....	29	27	7	13	7				2			19	10	Elec.	2
12	St. Louis, Decatur and Champaign.....	55	8	7				1	44	3			9	46	Steam	1
13	Danville, Chicago and Champaign.....	165	18	16				2	87				22	83		
14	Chicago City Railway.....	1,099	1,391	1,162	229				9	118	54	37	1,539	70		
15	Chicago Union Traction.....	2,775	2,551	1,464	1,080			4	17	106	54	45	1,577	1,198		
16	Chicago Consolidated Traction.....	317	243	131	173						12	12	256	61		
17	Calumet Electric Street Railway.....	221	183	68	115					32	4	2	132	89		
18	Chicago Electric Traction.....	54	50	10	40					2	1	1	49	15		
19	Southern Street Railway.....	21	20	20						1			20	1		
20	Central Electric Railway.....	1	1	1									1			
21	Suburban Railroad.....	23	20	20							1	2	19	4		
22	Northwestern Elevated Railroad.....	284	283	283									123	161		
23	South Side Elevated Railroad.....	414	400	401						14			371	43		
24	Metropolitan West Side Elevated.....	483	448	468						15			208	275		
25	South Chicago City Railway.....	102	86	54	32					11	1	4	54	41		
26	Chicago and Oak Park Elevated Rail- road.....	170	169	169						1			46	124		
27	Chicago and Milwaukee.....	81	73	41	25		8		2	4	1	1	57	24	Elec.	2
28	Chicago and Joliet.....	84	69	53	16				4	8	2	1	76	8		
29	Danville Street Railway and Light.....	38	38	20	18								34			
30	Decatur Railway and Light.....	31	27	18	9					3	1		26	5		
31	Illinois Central Traction.....	31	8	7				1	22	1			11	20		
32	Chicago, Bloomington and Decatur.....	81	5	5					76				6	75	Elec.	1
33	DeKalb-Seviermont and Interurban.....	8	7	5	2						1		5	3		
34	Sterling, Dixon and Eastern.....	18	16	10	6				1		1		12	6	Steam	1
35	St. Louis and Belleville.....	631	611	87	530				631	12		2	612	392	Steam	2
36	East St. Louis and Suburban.....	434	417	87	330				303	12		2	412	392	Steam	2
37	Elmwood and Belleville.....	11	9	9					2				11			
38	Freeport Railway, Light and Power.....	21	17	8	9					2	2		17	4		
39	Galesburg Railway and Light.....	37	35	18	17								30	7		
40	Peoples Traction.....	16	9	2	4		3		5	1	1		6	10		
41	Chicago Railway.....	7	6	6						1			7			
42	Kankakee and Western Illinois.....	2	2	1	1								2			
43	Chicago, Harland and Geneva Lake.....	9	7	4	1		2		1		1		5	4	Elec.	2
44	Chicago and Southern Traction.....	16	15	15							1		16			
45	Sangamon Valley Railway.....	1	1	1									1			
46	St. Louis and North Eastern.....	80	16	13				3	72	1			19	70		
47	Jacksonville Railway and Light.....	26	23	13	10					3			14	12		
48	Joliet, Plainfield and Aurora.....	13	9	8				1	1	1	1	1	13			
49	Kankakee Electric Railway.....	13	11	6	5					1	1		9	4		
50	North Kankakee Electric Light and Railway.....	10	10	10									5	5		
51	Galesburg and Kewanee.....	18	14	10	4					3		1	12	6		
52	Illinois Valley Railway.....	29	24	18	6				3	2			25	4	Elec.	1
53	Lansdown Railway and Light.....	7	7	4	3								7			
54	Madison Electric Railway.....	8	7	5				2		1			8			
55	Madison City Railway.....	8	6	6							1		8			
56	Madison, East Madison and W. downtown.....	18	15	9	6				1				15	3		
57	Rock Island Southern Railroad.....	13	3	3					8		1	1	6	7	Steam	1
58	Murphysboro Street Railway.....	2	2	1									2			
59	Northern Illinois Light and Traction.....	15	15	7	8								10	5		
60	Paris Traction.....	7	7	3	4								6	1		
61	Peoria Railway.....	195	183	129	54					3	9		108	87		
62	Peoria Railway Terminal.....	10	10	10									10			

* Includes 19 electric and 7 steam.

* Gasoline motors.

* Equipped with pilots.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.												NUMBER OF—								
Motor equipments for motor cars.						With brakes.			Heated.			Lighted.			Lamps for lighting of— fices, power shops, car ways, etc.			Miles of tele- phone line ex- clusively for oper- ation of road.	Number.	
Total.	One motor.	Two motor.	Three motor.	Four motor.	With tenders.	Hand.	Air.	Other mech- anical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.	Car houses.	Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).		
7		6		1		11			3	3		11	11		1		49		20	7
54	6	48				60	8		2	2		60	60		1	25	550		8	8
14		14				14						13	13		1		2,000		9	9
92	25	62		5		121	15					110	110		1	10	750		10	10
4		4				7						6	6		1		4		11	11
						4						4		4	1				12	12
23	5	7		11	23	23	12		23	23		23	23		2	5	300		30	
12	5	5		2	12	12	3		12	12		12	12		1	5	200			1
11		2		9	11	11	9		11	11		11	11		1		100		30	2
5,469	47	3,681	109	1,632	4,332	9,096	4,492		5,405	3,800	1,605	7,463	7,257	206	110	1,273	51,743	17	1,279	
45		27		18	45	50	42		43	42	1	45	45		3		167		27	1
4		4			1	4	2		4	3	1	4	4		1		50		5	2
3		2		1		3	3		1	1		3	3				15		4	4
14	1					4						4		4	1					5
2	2				2	2			2	2		2	2		1		20		5	5
24		24		1		27	1		16	16		28	28		2		2,000		6	6
10		10			10	38	38		20	10	10	10	10		1		60		40	7
16	11	5			16	21			11	4	7	20	20		1	1	75		9	9
14	14				4	10			5			8		8	1				9	9
3		3				5			5	5		5	5		1		5		10	10
19		17		2		27			17	17		19	19		2	24	480		1	11
9			9		9	55	32		17	9		9	9		1		30		31	12
22				22	19	105	22		22	22		22	22		1	12	150		58	13
1,485	16	617	20	802	1,465	1,538	832		1,168	1,168		1,420	1,420		7	321	4,854		186	14
1,577		1,179	11	398	1,445	2,775	186		1,464	725	739	2,570	2,559	101	15	351	8,419		15	15
232		241		232	232	317			232	232		316	316		4	75	1,325		16	16
132		103		29	132	190	27		76	2		191	191		5		600		67	17
39		39			37	54			10			53	53		1		160		18	18
20		20			20	20	9		20	20		20	20		1		150		19	19
1		1			1	1			1			1		1			150		20	20
17		17			20	20			9	9		20	20		1		75		21	21
123		123			20	284	284		283	283		283	283		1	24	1,200		8	22
371		370		1	414	414			400	400		400	400		1	78	6,370		12	23
208		208			483	483			498	175	283	478	478		2		1,000		19	24
58		35	2	21	50	90	21		50	18	32	93	93		1	15	705		14	25
46		46			170	170			160	160		160	160		1	12	1,000		10	20
57		4		53	151	81	81		49	9	40	81	81		2	41	1,500	3	40	27
73		45		28	66	84	38		53	53		81	81		4	18	800		31	28
38		38				38	3		20	20		38	38		1	28	100		29	29
25		25				30			23	25		30	30		1	26	1,851		30	30
11			11		11	31	30		18	10	8	10	10		1		60		40	31
6				6	26	81	81		11	6	5	6	6				40		47	32
5				1	1	4	3		5	4	1	8			1		8		33	33
10		6		4	10	10	4		10		10	16	16		2	5	30		13	34
						631	631										10		35	35
129		93		36	124	431	343		96	88	8	129	129		5	42	897		30	36
11				11	11	11	11		11		11	11	11		1		100		37	37
15		15			15	15			8	8		17	17		1	10	1,300	10		38
30		30			30	37	4		19	19		35	35		1	11	1,200		39	39
6					6	7			3		3	8			1		40		12	40
7					7	7	6		7	1		7			1		30		41	41
2					2	2			1	1		2	2						4	42
5					5	9	9		5	3	2	9	9		1	1	75		4	43
16				16	15	16	16		15		15	16	16				10		58	44
1				1	1	1			1	1		1	1			1	10		45	45
19			19		19	89	80		40	24	16	24	24		1	4	75		55	46
14		9			21	21			14	6	8	23	23		1	8	70		47	47
11		1		10	10	13	10		11	11		11	11		1		3,000		25	48
8		9			8	12			6	4	2	12	12		1		800		49	49
5		4		1	10	10	2		5	5		10	10		1		6		50	50
11		7		3	11	17	5		10	5	5	14	14		1	10	1,200		11	51
25	4		21		25	29	20		23	5	18	29	29		1	12	500		52	52
7		7			7	7	7		4	2	2	7	7		1		25		53	53
8		6		2	5	8	7		8		8	8	8				25		10	54
6		1		5	2	7	5		6	6	2	8	7		1	7	200		12	55
14		6		8	14	18	12		8	4		17	17		1		500		56	56
4				4	4	2	4		1		1	4	4			2	500		18	57
10		10			10	16			7	7		15	15		1		720		58	57
6					7	7			3	3		7	7		1		8		59	59
108		93		15	100	186	15		98	23	75	186	186		6	5	600		60	61
10				10	6	10	10		10	5	5	10	10		1		275			61

* Freight traffic only.

* Includes 1 gasoline motor.

STREET AND ELECTRIC RAILWAYS.

TABLE 183.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.			
		Aggregate.	Passenger.					Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprinklers.	Motor cars.	Trail-ers.	Kind.	No.		
			Combination.				Parlor, sleep-ing, dining, and private.										
			Total.	Closed.	Open.	Closed and open.										Pass-enger and ex-press, etc.	
ILLINOIS—Continued.																	
63	Bloomington, Pontiac and Joliet.....	2	2			2						2			Steam	1	
64	Quincy Horse Railway.....	40	46	20	26				3		3	25	24				
65	Rockford and Interurban.....	102	72	49	20			4		22	2	54	44				
66	Springfield Consolidated.....	105	94	58	36					9		67	38				
67	St. Louis and Springfield.....	6	4	4				2				4	2				
68	Springfield and North Eastern.....	27	(*)					27					27				
69	Illinois Light and Traction.....	13	12	7	5					1		11	2				
70	Aurora, Elgin and Chicago.....	144	111	92	17			23		2	6	102	42				
INDIANA.																	
Total for state.....		1,099	1,374	799	478	2	92	3	54	217	10	1,430	269			*11	
1	Indiana Union Traction.....	266	198	120	47			18		80		156	110	Elec.		1	
2	Angola Railway and Power.....	5	3	1	2					2		2	3				
3	Marion, Bluffton and Eastern.....	9	5	1		4		1		3		7	2				
4	Brownstown and Bowling.....	1	1	1									1				
5	Central Indiana Traction.....	4	4	4								4					
6	Indianapolis, Columbus and Southern.....	24	18	15			3		3			22	2				
7	Fort Wayne and Springfield.....	6	3			3		2			1	5	1	Steam		1	
8	Evansville and Southern Indiana.....	79	73	43	30			1		3	1	79					
9	Evansville Railway.....	10	8	3		5		2				10		Steam		1	
10	Evansville Suburban and Newburgh.....	18	17	3	12			1				6	12	Steam		3	
11	Fort Wayne and Wabash Valley.....	169	152	65	60		26	1	7	4	2	167	2	Steam		2	
12	French Lick and West Baden.....	2	2	2								2					
13	Hannamond, Whiting and East Chicago.....	15	11	11				1		1		15					
14	Indianapolis Traction and Terminal.....	403	408	221	187					55		423	40				
15	Terre Haute, Indianapolis and Eastern.....	254	267	124	66		17		20	24	1	229	25				
16	Indianapolis and Cincinnati.....	41	20	20					7	14		25	16	Steam		2	
17	Indianapolis, Crawfordsville and West-ern.....	13	8				8		2	3		10	3				
18	Toledo and Chicago Interurban.....	10	8	1		7		2				10					
19	Kokomo, Marion and Western.....	31	24	14	8			3		3	1	26	5				
20	Chicago-New York Electric Air Line.....	2	2			2						2					
21	Lebanon-Thornton Traction.....	2	2			2						2					
22	Madison Light and Railway.....	8	8	4	4							4	4				
23	Lansville and Southern Indiana.....	60	55	39	15		1	1	3		1	47	13	Elec.		1	
24	Lansville and Northern.....	12	11	11				1				7	5				
25	Winona Interurban Railway (Peru division).....	4	4	4								1	3				
26	Muncie and Portland.....	13	5			5		3	5			7	6				
27	Indianapolis and Louisville.....	10	8	8				2				10					
28	Chicago, South Bend and Northern In-diana.....	104	92	53	31	2	6	3	2	3	4	98	6				
29	Southern Michigan Railway.....	18	12	12				2	3	1		16	2				
30	Vincennes Traction and Light.....	17	14	8	6				3			17					
31	Washington Street Railway.....	8	8	4	4							8					
32	Winona Interurban Railway.....	7	5	5				2				7					
33	Winona and Warsaw.....	14	8	2	6				6			6	8				
IOWA.																	
Total for state.....		1,080	853	474	346	1	30	2	140	56	16	729	351			*10	
1	Albia Interurban.....	3	3	3								2	1				
2	Boone Electric.....	8	5	4	1				2	1		5	3				
3	Fort Dodge, Des Moines and Southern.....	17	15			15		2				17					
4	Boone Suburban.....	4	3	2	1				1			2	2				
5	Peoples Gas and Electric.....	60	51	17	34				7	2		32	28				
6	Cedar Rapids and Mason City.....	48	42	23	18		1		4	2		38	10				
7	Cedar Rapids and Iowa City.....	11	7	2		5		1	2	1		9	2	Elec.		1	
8	Centerville Light and Traction.....	2	2	2								2					
9	Clinton Street Railway.....	27	22	10	12				4	1		27					
10	Iowa and Illinois Railway.....	15	7	7				4	3	1		6	9	Elec.		1	
11	Trinity Railway.....	227	218	132	86				3		6	186	41				
12	Des Moines City Railway.....	106	136	117	17		2	45	9	5	1	128	68				
13	Interurban Railway.....	60	12	5			7	48	2			14	46	(*)		3	
14	Union Electric.....	67	64	23	41				2		1	47	20				
15	Fort Madison Street Railway.....	12	11	4	7					1		8	4				
16	Kesokuk Electric Railway and Power.....	19	16	6	10				1	1		14	4				
17	Marshalltown Light, Power and Rail-way.....	9	8	5	3				1			6	3				
18	Mason City and Clear Lake.....	17	13	6	6		1	4				8	9				
19	Citizens Railway and Light.....	30	26	16	20				3			27	12				
20	Oskaloosa Traction and Light.....	17	14	7	7				2		1	12	5				
21	Ottumwa Railway and Light.....	43	40	16	24				2			34	9				
22	Snook City Traction.....	84	77	45	32			4	3		4	64	16				
23	Tama and Toledo.....	13	5	2	3			4	4			3	10				
24	Waterloo, Cedar Falls and Northern.....	83	46	20	24	1	1	31	1	1	1	34	49	(*)		5	

* Equipped with pilots.

* Passenger cars furnished by other companies.

* Operated by other companies.

* Includes 2 electric and 9 steam.

GENERAL TABLES.

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EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.												NUMBER OF—				Miles of tele- phone line ex- clusively for oper- ation of road.	Number.		
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.			Lamps for lighting of shops, power houses, car ways, etc.					
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fend- ers.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.	Car houses.	Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).	
2				2	2	2	2		2		2	2	2				25		63
25		25			25	49			20	20		44	44		2		175		64
54		20		34	58	68	34		82	4	78	102	102		34		1,566		65
65		65			64	96			200	34	5	95	95		8		200		66
11		11	4		14	6	6		6	2	4	6	6		10		100		67
101		66		45	114	27	27		27	2	2	2	2		2		40		68
						12			7		7	12	12		5		200		69
						136	00		126	111	15	113	113		3		3,630		70
1,393	53	944	2	304	1,191	1,636	730		958	279	669	1,505	1,493	12	00	378	30,935	152	1,773
156		105		51	29	268	140		136	2	134	191	191		8	45	14,814	42	638
2		2		7	7	4	1		2	2		3	3		1		100		1
7						9	7		6		6	7	7		1	15	65		2
4		4				1			1		1	1	1						3
22		1		21	20	4			4	4		4	4		1		40		4
4				4	4	24	22		20	4	16	22	22		3		250		5
77		65		12	14	77	12		44	36	8	77	77		1		40		6
10				10	10	10	10		10		10	10	10		3	20	300		7
6				6	6	18	9		6		6	18	18		2		80		8
161	30	49		36	125	163	35		103	60	37	163	163		1		389	30	9
2		2			2	2			2	2		2	2		5	70	399		10
13		5		10	14	15	10		12	1	11	14	14		1		25		11
423		423			422	493	180		234	16	218	423	423		6	45	8,040	80	12
229	6	129		94	208	225	118		158	73	85	248	248		7	95	3,337		13
23				23	23	35	35		25		25	25	25		2	25	1,000		14
10				10	10	13	10		10		10	10	10		1		60		15
10				10	10	10	10		8		8	10	10		1		70		16
22	4	12		6	25	16	10		16	6	10	27	27		2	11	040		17
2				2	2	2	2		2	2		2	2		1		100		18
2				2	2	2	2		2		2	2	2						19
4		4			4	4			4		4	4	4		2	1	50		20
47		30		17	56	59	18		34		34	47	47		3	20	1,300		21
7		1		6	2	13	12		13		13	13	13		2		60		22
1		1		1	1	4	4		1	1		4	4						23
7		1		6	16	13	7		6		6	7	7		1		180		24
10				10	10	10	10		10		10	10	10		1	10	145		25
77		48		29	97	104	34		65	42	23	104	104		5		500		26
16		5		11	15	15	14		14	12	2	15	15		1		50		27
14		14		14	14	14			8	2	6	14	14		1		10		28
8		7		7	7	8	7		5	4	4	8	8		1		5		29
7				7	7	7	7		5	1	4	7	7		1	12	400		30
6		2		4		14	6		3	3		9	9				130		31
																			32
704	37	556	6	105	635	1,004	160	3	493	131	362	887	880	7	25	109	11,799		33
2		2			2	3			2		2	3	3						1
5		5			5	5			4	4		5	5		1	5	100		2
17		3		14	3	3	14		17	2	15	17	17		1		300		3
2		2			2	2			2	2		3	3				100		4
30		30			27	58			17	17		51	51		1		92		5
36	10	22		4	35	40	6		24	3	21	42	42		3	3	205		6
8	2				2	10	8		8	2	6	8	8		1	11	200		7
2		2			2	2	1		2		2	2	2		1	2	50		8
26		26			23	26			10	2	8	26	26		1	6	800		9
5		1		4	15	15	15		8		8	9	9		1		600		10
186		140		46	180	227	49		106	26	80	227	227		3	15	2,500		11
122		122			119	166			119	1	118	139	139		3	35	2,000		12
11				11	12	80	13		12		12	18	16		2		1,000		13
46	16	30			46	66			23	23		66	66		2	35	690		14
7		7			7	11			4	4		11	11		1		15		15
13		11		2	16	16			6		6	10	16		1		200		16
6		5			6	8			5		5	7	7		1	3	130		17
8		5		3		17	11		9	6	3	15	15		2		67		18
27		27			11	39			16		16	37	37		1	14	805		19
11	8	3			14	12	1		8	7	1	14	14		1	4	150		20
33		33			33	42		3	16	16		40	40		1	12	630		21
68		54		14	63	80	28		69		69	80	80		4	20	600		22
3		3			3	7			2	2		5	5		1	4	250		23
30		23		7	28	56	14		24	14	10	48	42		2		295		24

* Includes 5 electric and 5 steam.

* Includes 2 electric and 1 steam.

* Includes 1 electric and 4 steam.

TABLE 185.—CARS AND MISCELLANEOUS

Number	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.		
		Aggregate.	Passenger.					Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprin-klers.	Motor cars.	Truck-ers.	Kind.	No.	
			Total.	Classed.	Open.	Combination.										Parlor, sleeping, dining, and private.
						Classed and open.	Passenger and ex-press, etc.									
KANSAS.																
	Total for state.....	344	275	184	56		5		10	29	4	7	210	115		12
1	Arkansas City Street Railway.....	4	4	2	2									4		
2	Atkinson Railway, Light and Power.....	20	16	7	9					3		11		9		
3	Fort Scott Gas and Electric.....	7	7	5	1							4		3		
4	Genard Coal Belt Railway.....	2	2	2								2				
5	Hutchinson Interurban.....	12	12	6	6							6		6		
6	Union Traction.....	16	12	9	3			1	3			13		3	Steam	1
7	Iola Electric Railroad.....	12	10	6	4			1	1			7		5		
8	Electric Railway, Light and Ice.....	10	9	5	4				1			6		4		
9	Kansas City Western Railway.....	55	38	34	4			5	10		2	43		12		
10	Joplin and Pittsburg.....	34	30	17	13			1	3			3		3		
11	Missouri and Kansas Interurban.....	9	7	5	2			2				53		0		
12	Kansas City and Olathe.....	(1)														
13	Salina Street and Interurban.....	3	3	2	1							1		2		
14	Consolidated Street Railway.....	5	4	4								1		5		
15	Tonawanda Railway.....	67	65	35	25		5	9	7	4	3	43		64	Elect.	1
16	Wichita Railroad and Light.....	51	51	39	12				2			49		4		
17	Union Street Railway.....	5	5	5										5		
KENTUCKY.																
	Total for state.....	879	898	525	176	103	3	11	47	1	12	764	115			
1	Howling Green Railway.....	8	7	6	1				1			8				
2	Cincinnati, Newport and Covington.....	177	165	45	20	99		1	8		4	177		2		
3	Henderson Traction.....	13	12	8	4				1			11				
4	Lexington Railway.....	57	56	24	32					1		46		11		
5	Blue Grass Traction.....	6	7	7				1				8				
6	Central Kentucky Traction.....	14	13	8	2			1				14				
7	Louisville Railway.....	400	448	373	75			6	28		8	114		76		
8	Louisville and Eastern.....	15	10	10				3	2			14		1		
9	Mayfield Street Railroad.....	14	13	5	8				1			9		5		
10	Owensboro City Railroad.....	28	26	17	9				2			25		3		
11	Palmach Traction.....	48	44	17	23	1			4			31		17		
12	Somerset Water, Light and Traction.....	3	3	3				3				3				
13	Winchester Railway, Light and Ice.....	4	4	2	2							4				
LOUISIANA.																
	Total for state.....	631	599	554	28	15		2	1	31		556	75			
1	Alexandria Electric Railways.....	9	8	5	3				1			5		4		
2	Baton Rouge Electric and Gas.....	16	12		3	9			4			9		7		
3	Lake Charles Street Railway.....	8	8									8				
4	City of Monroe Municipal.....	13	12	3	3	6						10		3		
5	St. Charles Street Railroad.....	54	52	53					1			54				
6	Orleans Railroad.....	27	27	27								27				
7	New Orleans Railway and Light.....	333	314	301	12			1	18			284		39		
8	New Orleans and Carrollton.....	133	129	128				1	4			149		3		
9	New Orleans and Pontchartrain.....	5	5	5								5				
10	Metairie Railway and Lighting.....	9	9	6	3							6		3		
11	Shreveport Traction.....	24	22	18	4				2			18		6		
MAINE.																
	Total for state.....	658	484	296	263	6		1	64	55	56	566	92	Elect.		8
1	Bangor Railway and Electric.....	81	52	24	28				30	3	6	53		8	Elect.	2
2	Biddeford and Saco.....	33	31	9	22						2	23		12		
3	Portland and Brunswick.....	13	10	5	5				1	2		15				
4	Clare Street Railway.....	9	7	3	4					1	1	6				
5	Eastfield and Shawsheen.....	5	3		2	1			1	1		5				
6	Benton and Leary St.....	13	1	1					10	2		4		9		
7	Freeport Horse Railroad.....	6	6	3	3							9				
8	Lexington, Augusta and Waterville.....	103	80	37	41		1	1	3	10	10	99		1		
9	Norway and Paris.....	5	4	2	2							5				
10	Portland Railroad.....	234	191	95	99				1	18	20	220		13		
11	Rockland, Thomaston and Camden.....	36	19	9	10				7	7	3	22		14		
12	Rockland, South Thomaston and Orono Head.....	(1)														
13	Atlantic Shore Line.....	72	44	14	26		4		14	9	5	58		14	Elect.	6
14	Somerset Traction.....	14	9	2	5	1	1		3		2	12		2		
15	Acorn and Turner.....	11	4	2	2				5	1	1	7		4		
16	Waterville and Fairfield.....	10	8	4	4					1	1	10				
17	Waterville and Oakland.....	14	12	8	4					1	1	8		6		

* Includes 1 electric and 1 steam.

* Equipped with pilots.

* Gas-electric motors.

* Cars rented.

GENERAL TABLES.

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EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—			Miles of tele- phone line ex- clusively for oper- ation of road.	Number.		
Motor equipments for motor cars.					With fenders.	With brakes.		Heated.			Lighted.			Car houses.	Lamps for lighting of fices, power shops, car houses, etc.				
Total.	One motor.	Two motor.	Three motor.	Four motor.		Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.		Oil, gas, etc.			Arc.	Incandes- cent.	Other (Normal, vacuum, vapor).
213	3	169		41	118	313	88		165	103	62	283	267	16	23	84	8,290	10	76
10		10				4			2		2	4		4	1				
4						16			7			16			1				
2		2				7	4		3	3		4			2				
6		6				12			6	4		12			1				
13		8				18	8		10	10		13			2				
7		5				12	2		6	6		11			1				
6		4				8	3		5	5		9			1				
41		18				53	35		36	35		41			2				
31		28				31	19		18	18		31			2				
83		13				9	7		5	5		7			2				
1	1				3	3			1			3			1				
40		35			40	80	8		2	9	30	66			1				
49		47			49	53	2		39	39		53			2				
						5			4			5			1				
750	27	508		215	660	840	195		608	585	23	857	857		23	57	9,408		85
8	8					8			8	8		8	8		1				
173		173			165	173			145	145		173	173		2				
11		11				12			6	5		12	12		1				
45		45				26			24	23		36	36		2				
8						8	8		8	8		8	8		1				
14		6				14	7		12	8		14	14		1				
414		229			414	482	160		379	373		482	482		10				
14					13	14	14		12	5		14	14		2				
9	5	4			6	13			13			13	13		1				
25	2	23			28	28			15	15		25	25		1				
22	12	10			45	3			3	3		45	45		1				
3		3			4	4			2			3	3		1				
4		4										4	4						
558	4	521		29	530	396	231		3		3	612	612		16	86	2,034		
5		5				5						8	8		1				
8		8				12						12	12		1				
10						13			3		3	13	13		1				
54		54			54	54						54	54		1				
27	4	21			27	27						27	27		1				
284		260			284	109	224					321	321		6				
130		130			130	130						133	133		2				
5		5			5	5						5	5		1				
6		6			6	6						9	9		1				
18		14			18	24	2					22	22		1				
490	4	345	2	139	12	502	132		220	204	15	587	561	6	43	184	5,195		280
44		33		11		81	9		24	19	5	55	55		6				
19		19				31			9	9		31	31		1				
10		5				10	10		3	5		10	10		1				
8		8				9			3	3		9	9		1				
5		5				5			2	2		5	5		1				
4		4				3			1	1		4	4		1				
83		61				83	20		2	2		83	83		2				
4	4					4						4	4		1				
213		158				230	39		56	95		230	230		6				
21		17				27	5		10	10		27	27		2				
45		5				72	39		19	10		72	72		6	20	500		78
12		12				14			4	4		12	12		1				
6		4				11	4		3	2	1	7	7		1				
10		10				10			4	4		10	10		2				
6		4				6	6		4	4		12	12		2	21	102		6

* Gasoline motor.

* Cars furnished and operated by Rockland, Thomaston and Camden Street Railway Company.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.													LOCOMOTIVES, ELECTRIC AND STEAM.	
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprin-klers.	Motor cars.	Trail-ers.	Kind.	No.
			Total.	Closed.	Open.	Combination.		Parlor, sleep-ing, dining, and private.								
					Closed and open.	Pass-enger and ex-press, etc.										
MARYLAND.																
	Total for state.....	1,754	1,596	465	627	581	9	4	76	32	13	47	1,657	67		
1	United Railways.....	1,616	1,513	434	499	576		4	19	28	10	48	1,616			
2	Cumberland Electric Railway.....	21	21	12	9					1	2		18	6		
3	Cumberland and Westernport.....	16	12	7		5			2	1		1	16			
4	Frederick and Middletown.....	62	17	4	11		2		43	1	1		12	50		
5	Hagerstown and Boonsboro.....	12	2	1			1		10				2	10		
6	Hagerstown and Myersville.....	2	2				2						2			
7	Hagerstown and Northern.....	2	2				2						2			
8	Hagerstown Railway.....	17	14	5	7		2		2	1			17			
9	Baltimore and Bel Air.....	(1)														
10	Kensington Railway.....	2	2	2									2			
11	Washington, Berwyn and Laurel.....	(1)														
12	Washington and Rockville.....	(1)														
13	Washington, Woodside and Forest Glen.....	11	1		1									1		
MASSACHUSETTS.																
	Total for state.....	8,873	7,612	3,678	3,815	104	5	10	91	345	812	13	8,556	317		43
1	Amesbury and Hampton.....	12	11	2	9						1		12			
2	Lexington and Boston.....	70	61	23	38					2	7		70			
3	Interstate Consolidated.....	(1)				4							9			
4	Lowell and Fitchburg.....	9	8	4		4					1					
5	Old Colony Street Railway.....	962	798	345	430		1	6	75	85			920	42		
6	Boston and Northern.....	1,464	1,225	482	643	100			57	181		1	1,132	32		
7	Boston Elevated Railway.....	3,790	3,378	1,870	1,504			4	12	45	305	9	3,608	94	Elec.	2
8	Blue Hill Street Railway.....	42	28	12	16					11	3		42	10		
9	Berkshire Street Railway.....	91	81	37	43			1		4	6		91			
10	New York, New Haven and Hartford.....	48	48	6	42								11	37		
11	Concord, Maynard and Hudson.....	19	16	7	7			2		1	2		19			
12	Conway Electric Street Railway.....	15	4	1	2		1		9	1	1		4	11		
13	Cottage City and Fitchburg.....	8	7		7					1			7	1		
14	Dedham and Franklin.....	16	13	10	3					1	2		10	6		
15	Connecticut Valley Street Railway.....	53	41	17	22		2			7	5		50	3		
16	Providence and Fall River.....	23	19	9	10				1		3		23			
17	Lowell and Pelham.....	10	9	4	5						1		10			
18	Dartmouth and Westport.....	32	23	11	12				4	1	4		31	1		
19	Fitchburg and Leominster.....	65	54	28	26					5	5	1	64			
20	Boston and Worcester.....	94	77	46	31				2	4	11		92	2		
21	Gardner, Westminster and Fitchburg.....	27	21	9	12					4	2		26	1		
22	Haverhill and Southern New Hamp-shire.....	11	11	5	6								11			
23	Haverhill and Plattsburgh.....	(1)														
24	Haverhill and Amesbury.....	61	50	16	34					4	7		50	11	Steam	1
25	Holyoke Street Railway.....	155	118	46	72				3	23	9	2	142	13		
26	Westborough and Hopkinton.....	2	2	1	1								2			
27	Lawrence and Methuen.....	14	12	5	7						2		14			
28	Nahant and Lynn.....	17	15	3	12					1	1		17			
29	Norfolk and Bristol.....	24	20	10	10					2	2		23	1		
30	Marlborough and Westborough.....	15	12	6	6				1	1	2		15			
31	Lowell, Acton and Maynard.....	2	2	1	1								2			
32	Melfield and Melway.....	9	7	4	3						2		7	2		
33	Milford, Attleborough and Woon-sucket.....	31	28	12	16						3		30	1		
34	Milford and Uxbridge.....	54	43	22	20		1			3	8		54			
35	Natick and Cohasset.....	43	37	17	20					2	4		43			
36	Middlesex and Boston.....	19	14	9	5					2	3		19			
37	Union Street Railway.....	138	120	54	66				2	7	9		135	3		
38	New Bedford and Onset.....	42	36	12	24				1	1	4		41	1		
39	Citizens Electric Street Railway.....	34	30	12	18				1	1	3		31	4		
40	Newton and Boston.....	21	17	10	7					1	3		21			
41	Newton Street Railway.....	157	144	61	83					4	9		156	1		
42	Northampton Street Railway.....	58	45	21	23				4	5	4		58			
43	Norton and Taunton.....	24	18	10	8				2	1	3		21			
44	Attol and Orange.....	14	13	8	5						1		14			
45	Pittsfield Electric.....	39	36	16	20						3		39			
46	Plymouth and Sandwich.....	4	4	2	2								4			
47	Brookton and Plymouth.....	32	25	10	15				1	3	3		31	1		
48	Norwood, Canton and Sharon.....	8	7	4	3						1		8			
49	Shelburne Falls and Colman.....	14	5	3	2				8		1		5	9		
50	Springfield Street Railway.....	344	292	136	145			1	22	2	34		334	10		
51	Bristol and Norfolk.....	7	5	2	3					1	1		6	1		
52	East Taunton Street Railway.....	10	7	3	4						2		10			
53	Taunton and Pawtucket.....	17	15	6	9					1	2		17			
54	Templeton Street Railway.....	19	15	7	8				2		2		18	1		
55	Uxbridge and Blackstone.....	12	10	4	6					1	1		11	1		
56	Ware and Brookfield.....	13	12	4	8						2		13			
57	Warren, Brookfield and Spencer.....	21	17	7	10					2	7		20	1		
58	Western Massachusetts Street Railway.....	47	39	15	24					4	4		43	4		
59	Lynnwood Street Railway.....	4	4	4	4								4			
60	Worcester Consolidated.....	377	326	147	179				7	7	37		370	7		
61	Worcester and Blackstone Valley.....	22	18	10	8					1	3		22			
62	Worcester and Southbridge.....	77	64	27	36			1	4	3	6		75	2		
63	Worcester and Holden.....	11	7	3	4					3	1		9	2		

1 Cars rented.

2 Cars also rented.

3 Includes 2 electric and 1 steam.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—				Miles of tele- phone line ex- clusively for opera- tion of road.	Number	
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of shops, power houses, car houses, ways, etc.				
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fenders.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.		Oil, gas, etc.	Arc.			Incandec- cent.	Other (Notat, vacuum vapor).
1,665		1,255	1	426	1,666	1,754	435	885	315	315		1,700	1,698	2	29	145	24,659	79	
1 616		1,230		386	1,616	1,616	382	885	265	265		1,616	1,616		19	127	23,775	24	
16		16		12	16	16			12	12		24	24		2	6	154	18	
16		1	1	14	15	16	16		15	15		18	18		2	5	275	3	
12		8		4	62	12	5		7	7		20	20		5		395	4	
2				2	2	12			2	2		2	2					12	
2				2	2	2	2		2	2		2	2					8	
2				2	2	2	2		2	2		2	2					10	
17		1		16	17	17	16		8	8		16	16		1	7	50	7	
2		2				2			2	2		2	2				5	10	
																		11	
						1										5		12	
																		13	
5,932	102	4,518	20	1,312	7,467	8,314	2,114		3,866	3,851	15	7,873	7,851	22	201	1,337	62,173	1,505	
9		7		2	11	12	6		2	2		12	12		1		39	8	
63		39		24	63	63	57		23	23		63	63		3		80	35	
8		2		6	8	2	6		8	6		8	8		1		25	18	
667	16	497		154	834	961	160		354	354		807	796	21	31	193	6,668	296	
1,111	45	890		205	1,250	1,464	345		578	578		1,250	1,250		33	50	8,915	252	
2,045		2,022		23	3,233	3,478	345		1,896	1,896		3,456	3,456		36	625	22,169	8	
29		17		12	28	28	26		12	12		29	29		1		150	13	
70		9		61	85	91	77		41	35	6	67	87		4	20	1,005	69	
11		9		2	11	48	48		6	6		48	48		1		981	7	
19		3		16	17	17	16		9	9		19	19		1		80	15	
4		2			15	8			3	3		4	4		1		20	12	
8		8			8	8			5	5		8	8		1		100	13	
42		24		18	41	48	15		19	19		42	42		3		239	14	
16		2		14	20	20	19		9	9		20	20		1		160	15	
9				9	10	10	10		4	4		10	10					16	
27				27	32	27	27		11	11		27	27		2	25	599	16	
64	1	48		15	54	64	19		24	27	1	64	64		2	53	483	30	
66	1	11		54	79	81	70		55	47		81	81		4	10	1,075	45	
21		19		2	21	25	5		9	9		25	25		2	10	109	12	
11				11	11	11	11		5	5		11	11				20	8	
43		36		7	45	50	12		17	17		43	43		4		5	3	
144		47		97	131	144	48		46	46		140	140		2	70	80	23	
2					2		2		1	1		2	2				1,263	67	
12					12	14	14		5	5		14	14					13	
16		15		16	16	16	15		3	3		16	16		1		75	4	
13		6		7	21	21	10		10	10		21	21		2		229	13	
7		2		5	13	13	11		6	6		12	12		1		150	14	
2				2	2	2	2		1	1		2	2					31	
5		5		5	5	5	3		2	2		5	5					32	
30		16		14	6	31	14		12	12		28	28		1	35	725	9	
43		27		16	43	46	16		23	23		43	43		3		400	30	
39		28		11	37	37	21		17	17		39	39		1	5	40	28	
16		12		4	16	12	4		9	9		16	16		3		90	26	
104	13	90		1	122	138	41		56	56		129	129		4	40	1,022	37	
26				26	36	42	36		12	12		37	37		1		691	6	
19		1		14	26	33	13		10	10		26	26		2		175	38	
18		18		7	18	18	18		10	10		18	18		1	4	295	11	
147		140		7	147	149	49		61	61		147	147		2		383	30	
54		40		14	49	54	14		22	22		56	56		3	3	200	25	
14		15		8	21	24	1		10	10		21	20		2		241	14	
13		13			13	13	13		8	8		13	13		1		73	44	
36		17		19	36	39	17		16	16		36	36		2	13	85	28	
4		4		4	4	4	4		4	4		4	4		1		10	45	
31		24		7	28	32	17		12	12		31	31		3		235	23	
7		7			7	7			4	4		7	7		1		60	6	
4		2		1	13	13			3	3		5	5		3		50	49	
282	169	133		296	344	399			137	137		291	291		9	90	1,115	50	
5		5		5	5	5	7		2	2		5	5		1		35	51	
8		5		3	7	10	3		3	3		10	10		1		105	32	
15		3		12	15	15	15		6	6		15	15		1		80	16	
16		12		4	15	17	3		7	7		16	16		1	5	226	12	
4		2		2	8	12	2		4	4		10	10		1		50	9	
9		5		4	13	19	6		7	7		13	13		1		30	36	
18	18				17	19			15	15		18	18		2	10	135	57	
40	2			23	39	47			17	17		39	39		2	8	250	22	
4	2			2	4	4			4	4		4	4				50	4	
285	134	0		333	377	412			164	164		358	358		4	5	5,988	80	
20		4		16	18	22	15		33	33		22	22		1		130	16	
75		23		52	69	75	49		33	33		75	75		4	25	2,762	62	
8				7	11	11	8		3	3		8	8		1		90	10	

* Equipped with pilots.

* Includes 2 six-motor equipments.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.- CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.													LOCOMOTIVES, ELECTRIC AND STEAM.	
		Aggregate.	Passenger					Ex-press, freight and mail.	Work and miscellaneous.	Snow-plows.	Sweepers and sprayers.	Motor cars.	Trail-cars.	Kind.	No.	
			Total.	Closed.	Open.	Combination.										Parlor, sleeping, dining, and private.
						Closed and open.	Passenger and express, etc.									
MICHIGAN.																
	Total for state.....	2,382	1,945	1,255	568	90	20	3	98	283	44	12	1,960	422		14
1	Adrian Street Railway.....	7	7	5	2								7			
2	Bay City Traction.....	46	43	16	17	10				1	1		42	4		
3	Hendon Harbor-St. Joe Railway and Light.....	35	24	7	10	6	1		3	6		2	30	5		
4	Detroit United Railway.....	1,226	1,080	804	271			2	22	108	115		1,118	88		
5	Detroit and Port Huron Street Line.....	124	80	54	26				10	31	13		80	35	Steam	2
6	Detroit, Jackson and Chicago.....	67	43	38	4		1		4	18	12		51	16		
7	Detroit, Monroe and Toledo Short Line.....	87	22	20	2				4	59	12		29	58		
8	Escanaba Electric.....	24	13	9	4					9	1	1	13	11		
9	Grand Rapids Railway.....	168	156	30	51	74		1	3	7		2	137	31		
10	Grand Rapids, Grand Haven and Muskegon.....	30	19	15	2	2			9	2			30			
11	Grand Rapids, Holland and Chicago.....	53	19	12	2	4	1		33		1		24	29	Elec.	2
12	Houghton County Street Railway.....	35	19	10					10	6			25	10		
13	Two City General Electric.....	9	7	7					1	1			8	1		
14	Marquette County Gas and Electric.....	11	8	4	4				1	2			8	3		
15	Jackson Consolidated Traction.....	36	34	19	15				2	2			34	2		
16	Michigan United Railways.....	180	157	85	55		17		5	12	4	2	120	51		
17	Manistee Light and Traction.....	27	25	8	17				1	1		1	14	13		
18	Marquette City and Presque Isle.....	20	17	13	4				1	1	1		17	3		
19	Metrominer and Marinette.....	48	44	18	26				2	2	2		23	25		
20	Muskegon Traction and Lighting.....	52	46	24	21	3			2	1	1		22	30		
21	Owosso and Corunna.....	5	4	3	1					1			5			
22	Detroit, Flint and Saginaw.....	9	2	2						7			3			
23	Saginaw Valley Traction.....	72	66	35	31				5	1	1	3	72	6		
24	Trans-St. Mary's Traction.....	11	8	8					1	1	1	1	10	1		
MINNESOTA.																
	Total for state.....	754	720	716	2			2	2	22	10		730	15	Elec.	1
1	Interstate Traction.....	21	18	18					2		1		10	11		
2	Duluth Street Railway.....	121	113	112				1		5	3		121			
3	Two City Rapid Transit.....	583	568	562				1		16	4		583		Elec.	1
4	Granite City Railway.....	17	15	15						2			14	3		
5	Winona Railway and Light.....	12	11	9	2					1			11	1		
MISSISSIPPI.																
	Total for state.....	139	124	64	43	15	2		2	12		1	115	24	Elec.	2
1	Columbus Railway, Light and Power.....	14	11	3	8					3			9	5		
2	Delta Electric Light, Power and Manufacturing.....	11	10	10						1			11			
3	Gulfport and Mississippi Coast.....	23	22		6	14	2		1				19	4	Elec.	1
4	Jackson Electric Railway, Light and Power.....	19	18	13	4	1				1			18	1		
5	Mercader Light and Railway.....	26	23	18	5					3			19	7		
6	Southern Light and Traction.....	13	12	5	7						1		13			
7	Essexville Street Railway and Power.....	13	8	5	3				1	4			6	7	Elec.	1
8	Vicksburg Railway and Light.....	20	20	10	10								20			
MISSOURI.																
	Total for state.....	2,557	2,270	1,772	313	174	2	9	27	195	8	57	2,410	238	Elec.	3
1	Cape Girardeau-Jackson Interurban.....	7	7	6	1								7			
2	Water, Light and Traction.....	6	3		1	2			4	2			5	1		
3	St. Francis County Railway.....	8	4		1	1	2		3	1			4	4		
4	Hannibal Railway and Electric.....	17	17	8	9								15	2		
5	Kansas City and Westport Belt.....	1							1				1		Elec.	1
6	Metropolitan Street Railway.....	710	645	559	78	33			1	18		23	636	94		
7	Missouri Water, Light and Traction.....	9	9	2	5	2							7	2		
8	St. Joseph Railway, Light, Heat and Power.....	202	191	87	104					8		3	139	63		
9	St. Louis, Lakewood and Grant Park.....	2	1	1						1			1	1		
10	Union Railways.....	1,494	1,283	1,037	81	135		9	17	160	8	35	1,428	53	Elec.	2
11	St. Louis, St. Charles and Western.....	14	12	12					1	1			14			
12	Sedalia Light and Traction.....	17	16	6	10					1			15	2		
13	Springfield Traction.....	43	42	21	21					1			28	15		
14	Southwest Missouri Railroad.....	40	38	35	2					2			40			
MONTANA.																
	Total for state.....	126	108	73	35	2			4	9	3	2	104	22		
1	Anaconda Copper Mining.....	23	18	12	6					3	1	1	7	16		
2	Bozeman Street Railway.....	3	3	3									3			
3	Butte Electric Railway.....	60	53	34	17	2			4	2	1	1	60			
4	Great Falls Street Railway.....	20	17	11	6					2	1		19	1		
5	Helena Light and Railway.....	20	17	13	4					2	1		15	5		

1 Includes 2 electric and 2 steam.

2 Also used as work cars.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—					Miles of tele- phone line ex- clusively for oper- ation of road.	Number
Motor equipments for motor cars.					With brakes.			Heated.		Lighted.			Car houses.	Lamps for lighting of- fices, power shops, car houses, ways, etc.					
Total.	One motor.	Two motor.	Three motor.	Four motor.	With hand- lers.	Hand.	Air.	Other mech- anical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.	Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).		
1,680	7	1,321	3	320	1,879	2,282	1,566	10	1,450	108	1,342	2,090	2,090		54	138	33,669	652	
7		7			7	7			5		5	7	7		1		90	1	
30	1	29			43	46			23		23	46	46		1		3,483	2	
24		21		3	9	32	3		14	11	3	24	24		1		150	3	
910		810		100	1,138	1,226	1,189		835	5	830	1,142	1,142		17		7,875	4	
74		53		21	89	124	116		71		71	97	97		3		1,000	5	
51		12		39	51	67	67		46	4	42	51	51		3	5	750	6	
29		2		27	29	76	76		27		27	29	29		1		600	7	
11		8	3		4	24			9	9		13	13		2		150	8	
135		102		34	126	166	1	9	114	1	113	166	166		3	40	3,000	9	
30		29		1	30	30	30	1	30	30		30	30		1	3	500	10	
24		12		12	24	53	24		17		17	24	24		1	10	1,500	11	
25		4		21		19	15		19	18		19	19		2	20	550	12	
8		8				11			8		8	9	9		1		100	13	
6		5				34			4		4	10	10		1	12	100	14	
28		17		11	34	34	2		19		19	34	34		1		800	15	
123		80		43	121	123	31		102		102	162	162		5	5	9,000	16	
14		14			26	26			8	8		26	26		1		300	17	
16		15			17	19			10	10		19	19		1		40	18	
23		19			44	44			18		18	44	44		3		1,250	19	
21		21			50	52			27		27	52	52		1	10	741	20	
5		5			4	5			4	4		4	4		1		20	21	
3		1		2	2	9	3		2		2	2	2		1		60	22	
52	1	42		9	67	72	9		30		30	72	72		1	33	1,600	23	
10		8		2	8	8			8	8		8	8		1		30	24	
736		99		637	717	688	635	1	722	22	700	718	748		11	1,159	5,919		
9		9			9	7	2		4		4	18	18		1		24	1	
121		67		54	118	71	50	1	109	1	108	121	121		2	30	445	2	
583		12		583	583	583	583		583	21	562	583	583		5	1,125	5,200	3	
12		12			15	15			15		15	15	15		2		150	4	
11		11			11	12			11		11	11	11		1	4	100	5	
114	7	93		14	50	117	18		3		3	130	130		9	39	3,350	16	
9		9			11	11			3		3	11	11		1	5	230	1	
11	5	6			11	11			11		11	11	11		1		300	2	
19		3		14	18	5	18					23	23		2	3	600	3	
18		18			19	19						18	18		1	20	100	4	
19		19			26	26						26	26		1	6	100	5	
12		12			12	12			12		12	12	12		1		300	6	
6		6			13	13			9		9	9	9		1	5	1,500	7	
20		20			20	20			20		20	20	20		1		200	8	
2,242	5	888		1,749	2,392	2,555	1,754		1,979	816	1,163	2,690	2,456	34	40	433	30,757	177	
7		7			7	7			6		6	7	7		2		30	1	
5		5			5	6			2	2		5	5		1	1	50	2	
4		4		4	4	7			4		4	5	5		1	5	75	3	
16		15			15	17			8		8	15	15		1		50	4	
					1	1			1		1			1			60	5	
608		208		400	689	710	367		575	546	29	710	677	33	11	132	5,794	14	
7		7			9	9			3		3	9	9		1		85	6	
70		70			132	202	65		78	78		194	194		3	107	5,736	7	
1		1			1	1			1		1	1	1		1		15	8	
1,428		530		908	1,481	1,481	1,281		1,224	123	1,101	1,445	1,445		12	150	16,388	9	
14		1		13	14	14	13		14	2	12	14	14		1		200	10	
15		15			17	17			6		6	17	17		1		150	11	
28	5	23			27	42			21	21		27	27		1	18	930	12	
40		16		24	38	40	40		36	36		40	40		4	40	1,200	13	
96	13	63		20	59	124	8	6	73	73		113	113		7	91	1,798	14	
5		2		3	22	8			12	12		14	14		1		343	1	
3		2			3				3	3		3	3		1		10	2	
59	1	41		16	59	59		6	36	36		57	57		3	66	910	3	
16	10	6			20	20			10	10		20	20		1	5	125	4	
13		12		1	29	29			12	12		19	19		1	20	310	5	

* Wheel guards.

* Passenger cars rented.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.													LOCOMOTIVES, ELECTRIC AND STEAM.	
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweepers and sprinklers.	Motor cars.	Trailers.	Kind.	No.
			Total.	Closed.	Open.	Combination.		Parlor, sleeping, dining, and private.								
						Closed and open.	Passenger and express, etc.									
NEBRASKA.																
	Total for state.....	518	483	254	209	17	2	1	3	17	4	11	455	63	Steam	1
1	Citizens Railway.....	25	25		8	17							18	7		
2	Omaha, Lincoln and Beatrice.....	5	4	2	1		1			1			3	2		
3	Lincoln Traction.....	80	75	47	27			1	3	1		1	68	12		
4	Nebraska City Street Railway.....	1	4	4									4	4		
5	Omaha and Council Bluffs.....	396	308	195	173					14	4	10	363	33		
6	Red Cloud Street Railway.....	3	2	2						1				3		
7	Omaha and Southern Interurban.....	3	3	3									3			
8	Sioux City, Crystal Lake and Homer.....	2	2	1			1							2	Steam	1
NEVADA.																
	Total for state.....	7	6	2		4				1			7			
1	Reno Traction.....	7	6	2		4				1			7			
NEW HAMPSHIRE.																
	Total for state.....	363	300	147	151	1	3	1	4	24	31	1	354	9	Elec.	1
1	Berlin Street Railway.....	9	8	4	4					1	1	1	9			
2	Claremont Railway and Lighting.....	10	7		4		3		1	1	1		10		Elec.	1
3	Boston and Maine (electric branch).....	49	43	29	14					3	3		48	1		
4	Chester and Berry.....	12	10	5	5				1				12			
5	Dover, Somersworth and Rochester.....	41	35	21	15					2	1		40	1		
6	Exeter, Hampton and Amesbury.....	25	13	4	8	1			1	8	3		19	6		
7	Hudson, Pelham and Salem.....	27	23	8	15						4		27			
8	Keene Electric Railway.....	11	9	4	5						2		11			
9	Laconia Street Railway.....	14	11	5	6				1	1	1		14			
10	Manchester and Berry.....	8	6	6						1	1		8			
11	Manchester Street Railway.....	102	89	34	54			1		4	8	1	101	1		
12	Manchester and Nashua.....	7	6	6							1		7			
13	Haverhill, Plaistow and Newton.....	15	13	7	6					2			15			
14	Portsmouth Electric Railway (Boston and Maine).....	24	21	10	11					2	1		24			
15	Portsmouth and Exeter.....	9	8	4	4						1		9			
16	Seabrook and Hampton Beach.....	(1)														
NEW JERSEY.																
	Total for state.....	2,930	2,565	1,580	933	35	5	3	13	229	28	85	2,853	77	Elec.	4
1	Atlantic Coast Electric Railway.....	92	85	18	67				1	4	2		90	2		
2	Central Passenger Railway.....	8	8	4	4								8			
3	West Jersey and Seashore (Atlantic City and Longport branch).....	65	60	20	38	2				2	1	2	62	3		
4	Atlantic City and Seaboard.....	24	21	7	14					3			21	3		
5	Atlantic City and Shore.....	20	20	18			2						20			
6	Bridgeton and Millsville.....	28	24	13	11				1	1	1	1	28			
7	West Jersey and Seashore (Camden and Atlantic City branch).....	91	82	80			2		8	1			80	2		
8	Cape May, Delaware Bay and Sewell's Point.....	10	9		8	1				1			10		Elec.	1
9	Ocean Street Passenger Railway.....	2	2			2							2			
10	New Jersey and Hudson River Railway and Ferry.....	45	41	24	17					2	1	1	45			
11	Jersey Central Traction.....	42	23	10	13					19			26	10		
12	Millsville Traction.....	18	15	9	6					2	1		14	4		
13	Morris County Traction.....	19	19	19									19			
14	Harrington County Railway.....	13	11	11						1		1	13			
15	Public Service Railway.....	2,193	1,917	1,256	638			3		178	25	72	2,153	40	Elec.	3
16	Ocean City Electric Railroad.....	13	12	1	11					1			13			
17	Easton and Washington.....	9	6	6						2	1		9			
18	Point Pleasant Traction.....	7	6	1	5					3	1		7			
19	Monmouth County Electric.....	23	19	6	8	4		1		3	1	1	23			
20	Hudson River Traction.....	15	11	10	1					2	1	1	15			
21	New Jersey Rapid Transit.....	7	6		6					1			7			
22	Trenton Street Railway.....	117	110	61	49					1	1	5	117	1		
23	Camden and Trenton.....	23	20		20					2	2	1	22	1		
24	New Jersey and Pennsylvania.....	23	16	13	3				3	2	2		18	5		
25	Trenton and New Brunswick.....	7	6		6					1			7			
26	Five Mile Beach Electric Railway.....	16	16	2	14								16			
NEW MEXICO.																
	Total for territory.....	13	12	5		7			1				13		Elec.	1
1	Albuquerque Traction.....	6	6		6								6			
2	Las Vegas Railway and Power.....	7	6	5		1			1				7		Elec.	1

1 Cars rented.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—			Miles of tele- phone line ex- clusively for oper- ation of road.	Number.		
Motor equipments for motor cars.					With fenders.	With brakes.			Heated.			Lighted.			Car houses.			Lamps for lighting of factories, power houses, shops, car houses, ways, etc.	
Total.	One mo- tor.	Two mo- tor.	Three mo- tor.	Four mo- tor.		Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.		Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).	
441		417		24	437	504	112		465	39	426	493	465	8	12		2,333		1
18		18		2	18	25			17		17	25	25		1		40		1
3		1		2	3	5	2		3	1	2	4	4		1		25		2
68		62		6	67	80			52	23	29	80	80		3		400		3
349		333		16	344	382	107		382	15	367	373	373	4	4		1,840		4
3		3			3	3	3		2		2	2		2	1		25		5
					2	2			2		2	2		2	1		3		6
7		7			7	7	4		6			7	7		1	1	60		7
7		7			7	7	4		6			7	7		1	1	50		8
304	22	173		109	294	352	173		161	153	8	345	345		20	165	6,476		195
8		2		6	7	8			4	4		8	8		1		120		1
9		2		7	7	9			4	4		7	7		1		150		2
48		22		26	44	40	33		29	29		48	48		3	12	150		3
12		12		10	37	12			5	5		12	12		2		20		4
24		14		10	37	40	8		22	22		40	40		2	31	547		5
10		7		3	16	19	5		10	8	2	19	19		1	12	1,284		6
14				14	23	27	12		8	8		27	27		2	91	1,085		7
11		11		9	9	11			4	4		11	11		1		75		8
14		14		11	13	13	2		5	5		11	11		1		40		9
7				7	6	7			6		6	7	7		4		255		10
101	22	62		17	90	102	57		35	35		101	101		4	14	1,440		11
7				7	6	7			6	6		7	7		1		215		12
9		2		7	15	15	13		9	9		15	15		1	5	65		13
23		19		4	23	24	12		10	10		23	23		1		245		14
7		6		1	8	9			4	4		9	9		1		45		15
																	160		16
2,832	10	1,544		1,238	2,641	2,913	1,309	40	1,642	325	1,317	2,598	2,597	1	73	342	17,258	58	375
88		83		5	85	88			18	14		88	88		1	10	100		1
8		8		11	8	8			4	4		8	8		1		1,100		2
62		51		11	57	65	62		24	24		64	64		1				3
21				21	21	21	14		7	7		21	21		1		100		4
20				20	20	20	20		20	20		20	20		1		200		5
28		18		8	27	27	7		14	14		28	28		2		512		6
89		89			91	91			90	90	1	91	90	1	3	28	1,500	58	7
10		10			1				1		1	10	10		1		125		8
2		2			2	2			2		2	2	2						9
41		4		37	41	45	37		24	24		45	45		1		500		10
26		3		23	13	42	25		10	10		26	26		1		500		11
13	1	8		4	17	17	5		9	3	6	15	15		2	29	150		12
19		15		4	19	19	14		19		19	19	19		2		25		13
13		2		11	13	13	11		11	11		12	12		1	20	99		14
2,153		1,125		1,028	2,153	2,193	957	40	1,259	3	1,256	1,917	1,917		40	247	11,407		15
13	3	10		5	6	8			1	1		13	13		2		25		16
6		1			6	7			6	6		6	6		1		115		17
7		7			7	7			1	1		7	7		1		5		18
22		22		19	22	22			11	11		19	19		1		60		19
15		4		11	11	11			10	10		11	11		1		50		20
6									6		6	6	6		1		70		21
110	6	100		10	111	117	10		61	61		110	110		2		400		22
21		3		18	21	21	18		20	2	18	21	21		2	2	65		23
18		2		18	18	23	16		14	6	8	18	18		3		45		24
7		1		6	6	6			6		6	7	7		1		100		25
16		16			16	16						16	16		1		25		26
13		10		3	11	11	2		11	5	6	13	13		2	2	60		
6		6			6	6			6		6	6	6		1				1
7		4		3	8	7			5	5		7	7		1	2	60		2

* Equipped with pilots.

TABLE 185. CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.															LOCOMOTIVES, ELECTRIC AND STEAM.	
		Aggr- gate.	Passenger.						Ex- press, freight, and mail.	Work and miscel- laneous.	Snow- plows.	Sweep- ers and sprink- lers.	Motor cars.	Tram- cars.	Kind.	No.		
			Total.	Closed.	Open.	Combination.		Parlor, sleep- ing, dining, and private										
					Closed and open.	Pas- senger and ex- press, etc.												
NEW YORK.																		
	Total for state.....	15,613	14,251	8,310	3,964	1,901	69	16	425	668	246	223	13,358	2,455		129		
1	Albany and Hudson Railroad.....	44	29	14	5	5	5		12		3		3	12	Elec.	1		
2	United Traction.....	432	391	235	155			1	7	12	13	9	432					
3	Hudson Valley Railway.....	139	102	40	59		3		13	16	6	2	95	41	Elec.	2		
4	Troy and New England.....	22	13	6	7				8				9	13				
5	St. Lawrence International.....	5	3		2		1			1	1		4	1				
6	Babylon Railroad.....	2	2		2									2				
7	Eastern New York Railroad.....	11	8				2		8		1		3	8	Steam	1		
8	Binghamton Railway.....	105	87	43	44				2	12	3	1	78					
9	International Railway.....	845	703	352	181	165	5		15	76	49	2	67	178	Elec.	2		
10	Crosstown Street Railway (Buffalo).....	251	251	221	30								251					
11	Buffalo and Depew.....	8	5	5														
12	Buffalo Southern.....	25	20	7	10	3				2	2	1	16	9				
13	Buffalo and Lake Erie.....	164	143	58	48	25	2		4	8	3	2	125	39				
14	Buffalo and Williamsville.....	16	11	9	2					3			13	3				
15	Catskill Electric Railway.....	12	10	4	6				1	1			11	1				
16	Cornwall and Raines Post.....	14	13	4	7						1		14					
17	Cortland County Traction.....	26	24	4	12	8			1	1	1		17	9				
18	Elmira Water, Light and Railroad.....	90	85	40	45					2		1	81	9				
19	Elmira and Seneca Lake.....	8	8	6	2								8					
20	Fishkill Electric Railway.....	24	20	7	13					2	1		21	2				
21	Lake Ontario and Riverside.....	3	3	3										3				
22	Glen Cove Railroad.....	5	4	1		2						1	5					
23	Adirondack Lakes Traction.....	4	4		3		1						4					
24	Fonda, Johnstown and Gloversville.....	73	63	11	20		2		2	2	4	2	73		(1)	2		
25	Great South Bay Ferry.....	1	1	1									1					
26	New York and Long Island.....	36	29	6		22	1			4	3		32	4				
27	Hornellsville Electric Railway.....	13	11	6		5				2			6	7				
28	Hornellsville and Canisteo.....	6	5	2	1	2					1		6					
29	Huntington Railroad.....	8	6	2	4				2				6	2				
30	Ithaca Street Railway.....	20	19	16	3						1		17	3				
31	Jamestown Street Railway.....	56	51	27	24				1	2		2	50	6				
32	Charltona Traction.....	22	16	4	4	7	1		2		1	1	22					
33	Keseeville, etc., Railroad.....	3	2	1			1			1			1	2	(1)	2		
34	Kingston Consolidated.....	40	38	14	24								40					
35	Lima-Honeave Light and Railroad.....	5	2	2					1	1	1		3	2				
36	Wallkill Transit.....	20	17	6	7	2	2			2			20					
37	Orange County Traction.....	48	42	13	11	16	2			1	1	1	33	15				
38	New Paltz, Highland and Poughkeepsie.....	13	11	6	5				1	1			8	5				
39	New York City Railway.....	3,209	3,096	1,932	904	80			34	57	17	65	2,973	276				
40	Forty-second Street, Manhattanville and St. Nicholas Avenue.....	172	166	166						2	2	2	164	8				
41	Dry Dock, East Broadway and Battery.....	(1)																
42	New York City Interborough.....	26	25	15	10							1	26					
43	Southern Boulevard Railroad.....	(1)																
44	Yonkers Railroad.....	(1)																
45	Union Railway.....	803	752	426	301	25			11	14	5	21	803					
46	Tarrytown, White Plains and Mamar- oneck.....	(1)																
47	Westchester Electric Railroad.....	(1)																
48	Interborough Rapid Transit.....	2,375	2,301	2,261	36			4		74			1,322	1,053	Steam	8		
49	Pelham Park Railroad.....	11	9	9					2				11					
50	City Island Railroad.....	11	9	9					2				11					
51	Brooklyn Heights Railroad.....	883	718	367	278	50		3	30	97	8	30	883					
52	Nassau Electric.....	942	669	229	564	104		2	11	17	7	8	942					
53	Brooklyn Union Elevated.....	727	669	569	100					28			363					
54	Brooklyn, Queens County and Sub- urban.....	223	204	4	100	100			7	6	4	2	223	304	Steam	5		
55	South Brooklyn Railway.....	153	(1)						144	3	6		123	30	Elec.	4		
56	Six Beach Railway.....	(1)																
57	Coney Island and Gravesend.....	25	25		25								25					
58	Transit Development Co.....	848	847		847						1		848					
59	Bridge Operating Co.....	20	20	20									20					
60	Coney Island and Brooklyn.....	490	470	189	270	10		1	1	13	2	4	488	2				
61	Van Brunt Street and Erie Basin.....	16	16	7	9								16					
62	Marine Railway.....	1	1		1								1		Steam	1		
63	New York and Queens County.....	258	226	77	118	30		1		21	7	4	252	6				
64	Long Island Electric.....	42	37	6	21	10				3		2	39	3				
65	Ocean Electric Railway.....	19	17		13	4				1		1	19					
66	State n Island Midland.....	66	60	16	44					2	2	2	66					
67	Richmond Light and Railroad.....	136	130	43	87					1	2	3	136					
68	Southfield Beach Railroad.....	6	3		3					3			3	3				
69	Electric City Railway.....	(1)																
70	Niagara Gorge Railroad.....	48	42	5	34	1	2			4	1	1	35	13				
71	Northport Traction.....	4	2		2				2				3	1				
72	Ogdensburg Street Railway.....	19	16	4	7	5				1	1	1	18	1				
73	Western New York and Pennsylvania.....	98	66	26	17		13		1	26	3		72	26				
74	Oswego Railway.....	21	18	2		16					3		21					
75	Oneonta and Mohawk Valley.....	73	20	5	4	4	6	1	68		5		29	44	Elec.	1		

¹ Includes 12 electric and 17 steam.

² Equipped with pilots.

³ Includes 1 electric and 1 steam.

⁴ Also equipped with pilots.

⁵ Cars rented.

GENERAL TABLES.

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EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—				Miles of tele- phone line ex- clusively for opera- tion of road.	Number	
Motor equipments for motor cars.						With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of- fices, power houses, shops, car houses, ways, etc.			
Total.	One motor.	Two motor.	Three motor.	Four motor.	With tenders.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.		Arc.	Incandes- cent.		Other (Nernst, vacuum vapor).
13,002	19	11,212	28	1,743	10,598	14,126	5,536	217	10,514	9,607	907	15,009	14,706	303	187	1,545	226,090	100	934
32				32	29	32	32		24	24		32	32		2	17	950		36
410		34		44	410	410	44		295	295		410	410		5	70	600		10
95		73		22	95	131	58	87	77	30	47	110	110		4	10	720		90
7						21			3	3		3	3		1		45		9
3		3				4	3		1		1	3	3		1		10		5
2						2						2	2	2					6
74		1		1	72	101	1		2	1	1	2	2		1		40		12
667		66		8	72	101	6		43	43		94	94		2	28	1,350		8
251		443		7	217	794	365	72	703	703		719	719		9	88	10,084		9
8		251			251	251	115	23	251	251		251	251		2		748		10
13		5			11	8			5	5		5	5		1		120		11
125		10		3	115	13	9	3	10	10		25	25		2		300		12
11		88		24	155	164	52		107	57	50	164	164		4	14	3,628		13
11		11			4	11			9	9		11	11		2		20		14
14		11			10	12			4	7		11	11		1		40		15
13		14				14			7	7		13	13		1		35		16
54		10		3		26			10	10		26	26		2		850	10	17
8		51			78	78	8		40	30		87	87		3	8	300		18
13		13		8	13	20	8		7	7		20	20		1				19
5		3		2	4	3			3	3		3	3		1		50		20
4		4			4	5			3	3		5	5		1		32		21
4		4			4	4		4	4	4		4	4		1		480		22
52		22		30	32	73	28	7	44	18	26	73	73		2	30	1,790		23
1		1			1	1			1	1		1	1		1		20		24
29		8		21	29	33	29		29	29		29	29		1	3	467		25
6		6			6	13			6	6		11	11		1		48		26
5		5			5	5			5	3	2	5	5		1				27
6		6			6	8			2	2		8	8		1		65		28
16		16				20			16	16		19	19		2	15	2071		29
48		48				54			27	27		56	56		2		300		30
22		22				22			20	20		20	20		2		500		31
1		1				2			2	2		2	2		1		8		32
20		20				39			14	14		30	30		1	50	282		33
2		2				4			2	2		2	2		1		15		34
20		15		5	20	14	6		12	12		20	20		1		275		35
33		28				48	4		36	34	2	48	48		3		600		36
7		5		2	12	13			6	6		6	6		2		30		37
2,821	2,821	2,821		2,821	2,821	2,821	153		1,884	1,884		3,097	2,838	259	20	200	75,000		38
160	160	160		160	160	166			160	160		160	160	6	2				39
25		25			25	25			15	15		25	25		2		250		40
777		777			777	777			451	451		777	777		3		2,000		41
															1		1,000		42
1,322	1,322				2,375	2,375			2,265	2,265		2,301	2,301		4	200	50,000	50	43
809	854		15	851	856	856	27		447	439	8	870	862	14	6	108	13,062		44
942	942			927	940	940	2		342	342		942	942		3		5,124		45
363	339		24	217	727	727			706	614	92	706	706		208		13,998		46
223	223				223	223			110	110		223	223		2	6	1,620		47
123	2		121	147	4	153			2	2		123	123			85	5,008		48
25			25	25	25	25			25	25		25	25				845		49
848	429		428	427	280	648			847	847		848	848			104	4,942		50
20	20			20	20	20			20	20		20	20		7		2,319		51
457	457			451	441	441			199	199		451	451		1				52
16	16			16	16	16			7	7		16	16		1		30		53
1	1			1	1	1						1	1		3				54
232	218		4	30	226	61			108	108		228	228		3	20	1,400	10	55
37	27				42				37	37		42	42		1		405		56
19	19				17	12			4	4		19	19		1		278		57
62	60		2		66				16	16		62	62		1		25		58
136	132		3	1	130	43			43	43		136	136		2	10	300		59
3	3				3							3	3		1				60
34	1	31		2	42	2			7	7		35	35		2		45		61
3	3				3				2	2		3	3		1			27	15
16	16				17				9	9		16	16		1		20		71
52	27			26	79	27			36	36		67	67		4	10	750		72
18	18			16	18	16			18	18		21	21		1		900		73
24	4			20	68	24			16	16		21	21		1	3	300		74

*Includes 14 cable-grip cars.

†Operates cars of other companies of the Brooklyn Rapid Transit system.

‡This company owns no cars, but operates trains of Brooklyn Union Elevated Railroad during such time as said trains are on the tracks of the company.

§Cars leased to other companies of the Brooklyn Rapid Transit system.

||Cars furnished by International Railway Company.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

		NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.		
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and spread-ers.	Motor cars.	Trail-ers.	Kind.	No.
			Total.	Closed.	Open.	Combination.		Parlor, sleep- ing, din- ing, and private.								
						Closed and open.	Pass-enger and ex-press, etc.									
NEW YORK—Continued.																
76	Hudson River and Eastern.....	5	4	4						1	1		5			
77	Oswego Traction.....	27	24	11	13						1	1	26	1		
78	Peekskill Lighting and Railroad.....	21	18	8	10						2		21			
79	Putnam and Westchester.....	(1)														
80	Penn Yan, Keuka Park and Branch- port.....	8	6	2	4				1	1			7	1		
81	Plattsburgh Traction.....	15	12	4	8					2	1		13	2		
82	New York and Stamford.....	44	41	17	23	2					2		44			
83	Port Jervis Electric Light, Power, Gas and Railroad.....	6	6	3	3								3	3		
84	Poughkeepsie City and Wappingers Falls.....	27	24	14	10					1	1	1	22	5		
85	Cohoes Railway.....	9	8	8							1		9			
86	Rochester Railway.....	452	394	173	38	175	8		23	15	16	4	412	40		
87	Rochester, Charlotte and Manitou.....	25	21	1	20				1	3			9	16		
88	Rochester, Syracuse and Eastern.....	17	19	4			2		2	3	2		15	2		
89	Rochester and Eastern Rapid Railway.....	51	14	14					4	31	2		19	32		
90	Rochester and Schuylkill.....	19	19	2	12	5							19			
91	New York and North Shore.....	6	6		6								6			
92	Schenectady Railway.....	208	142	68	43		1		5	45	7	4	170	33		
93	Nassau County Railway.....	3	3		2	1							3			
94	Genesee, Watertown, etc., Traction.....	35	32	16	15		1			1	1	1	27	8		
95	Syracuse Rapid Transit.....	205	141	120	40	20	1		1	10	11	2	176	29		
96	Syracuse and Suburban.....	20	14	10	4				2	3			19	1		
97	Syracuse, Lake Shore and Northern.....	27	22	7	15					3	2		27			
98	Adirondack and Syracuse.....	55	46	31	14		1		2	2	4	1	55			
99	Utica and Mohawk Valley.....	169	137	80	44	7			6	15	9	3	145	24		
100	Black River Traction.....	14	11	11					2	2		1	14			
101	Elmira, Corning and Waverly.....	7	6	6					1				7			
NORTH CAROLINA.																
Total for state.....		229	197	95	91	4	2		5	23	4		160	36		12
1	Asheville Electric.....	41	38	19	17	2			1	2			41			
2	Asheville Rapid Transit.....	29	9	2	6		1			11			2	18	Elec.	1
3	Charlotte Electric Railway, Light and Power.....	42	38	25	13					4			42			
4	Durham Traction.....	20	16	8	8						4		20			
5	Fayetteville Street Railway and Power.....	1	1		1								1			
6	Greensboro Electric.....	14	13	9	4					1			13	1		
7	Laurel Park Street Railway.....	2	2				1							2	Steam	1
8	Raleigh Electric.....	30	24	10	14					2			19	11		
9	Salisbury and Spencer Railway.....	6	6	2	2	2							6			
10	Tile Water Power.....	27	21	7	17				2	1			23	4		
11	Fries Manufacturing and Power.....	20	22	13	9				2	2			20			
NORTH DAKOTA.																
Total for state.....		52	48	18	20		1			1	2	1	27	25		
1	State of North Dakota.....	1	1	1									1			
2	Fargo and Moorhead.....	44	41	11	27					1	1	1	22	22		
3	Grand Forks Transit.....	4	3	3							1		3	1		
4	Valley City Street and Interurban.....	3	3		2		1						1	2		
OHIO.																
Total for state.....		5,460	4,774	2,604	1,605	630	117	18	305	459	42	110	5,080	610		11
1	Northern Ohio.....	310	272	153	88	22	8	1	7	15	3	3	240	7		
2	Stark Electric.....	24	22	22					1				16	8		
3	Ashtabula Rapid Transit.....	15	13	6	7					1		1	12	3		
4	Pennsylvania and Ohio.....	14	13	10	3						1		14			
5	Lake Erie, Bowling Green and Napo- leon.....	4	3	1			2			1			4			
6	Cambridge Power, Light and Traction.....	11	9	4	2		2		1	2			9	2		
7	Chillicothe Electric.....	10	9	5	4						1		10			
8	Cincinnati Traction.....	1,223	1,145	463	494	178		10	2	50		26	1,199	24		
9	Price Hill Inclined Plane.....	4	2	2					2					4		
10	Cincinnati, Lawrenceburg and Aurora.....	13	12	12								1	13			
11	Cincinnati Northern Traction.....	81	73	23	28	20	2		3	4		1	74	7		
12	Cincinnati and Columbus.....	18	8				8		10				10	8		
13	Ohio Traction.....	25	22		32					1		2	35			
14	Cincinnati, Milford and Loveland.....	16	10	8	2				1	5			12	4		
15	Interurban Railway and Terminal.....	61	35	22	6		7		6	20			44	17		
16	Cleveland Electric Railway.....	1,015	892	494	91	283	4			83	11	39	1,013	2		
17	Low Fare Railway.....	(1*)														
18	Municipal Traction.....	103	100	74	26				3				77	26		
19	Eastern Ohio Traction.....	42	20	24			2		4	9	3		34	8		
20	Cleveland, Southwestern and Colum- bus.....	82	68	63	5				5	3	4	2	77	5		

* Cars furnished and operated by Peekskill Lighting and Railroad Company.

* Equipped with pilots.

* Includes 3 six-motor equipments.

* Includes 2 six-motor equipments.

* Includes 1 electric and 1 steam.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.											NUMBER OF—			Miles of telephone line exclusively for operation of road.	Number.				
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.					Car houses.	Lamps for lighting of floors, power houses, shops, car houses, ways, etc.		
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fenders.	Hand.	Air.	Other mechanical.	Total.	Electric.	Stoves, etc.	Total.	Electric.				Oil, gas, etc.	Arc.	Incandescent.	Other (Nernst, vacuum, vapor).
4		4			4	4			4	4		4	4		1		20		76
18		18			24	25			11	11		24	24		1		50		77
21		21			18	21			5	8		19	18		2		30		78
7		4		3		8		3	3	2	1	7	7		1		400		79
12		12			12	12			4	4		12	12		1		40		81
41		31		10	41	1	43		10	19		42	42		3		450		82
3	3					6			3	3		6	6		1		30		83
20		19		1		25			14	14		24	24		1		70	3	84
8		8			8	8			8	8		8	8						85
385	1	132		252	361	375	100		344	61	283	381	281		10	45	875		86
9	9				13	15			10	10		22	22		1		30		87
13					17	17			10	10		13	13		1	10	1,000		88
17					17	17			10	10		19	19		1	10	200		89
19		12			6	6			7	7		19	19		1	45	1,500		90
6					6	6			6	6		6	6				150		91
170		78	4	288	109	109	83	18	122	100	22	170	170		2	61	2,388		92
3		3			3	3			1	1		3	3		1		33		93
25		24			24	25			12	10	2	43	33		1	10	350		94
178		94			185	190	84		142	2	140	205	205		3	6	1,125		95
18		5		13	10	19	3		11	5	6	18	18		1		250		96
23		10		15	25	27	25		25	24	1	25	25		1	5	2,500		97
50		28		22	50	60	17		48	44		47	47		2	30	1,000		98
145	2	68		76	150	184	83		108		108	154	154		9	20	3,280		99
14		14			14	14			14	14		14	14		1		200		100
7					7	7			7	7		7	7						101
191	2	185		4	181	228	39	1	72	72		209	205	4	11	85	5,219		48
41		41			41	41		1	21	21		41	41		1	48	715		1
2		2			2	20	20		10	9		10	9	1	1		200		2
40		38		2	42	42			40	40		40	40		1	13	550		3
20		20			16	20			5	8		16	16		1		750		4
1					1	1			1			1		1					5
13		11		2	13	14	4		9	9		13	13		1	5	544		6
					2	2	2		2			2		2			50		7
19		19			19	30			10	10		28	28		2	19	150		8
6		6			6	6			4	4		6	6		1		60		9
23		23			21	26	13		7	7		26	26		1		1,700		10
26	1	25			22	26			13	13		20	20		2		500		11
26		23	1	2	24	43	1		19		19	49	49		2	10	35		3
1				1	1	1	1		1		1	1	1		1				1
22		21	1		20	28			14		14	42	42		1	10	80		2
2		2			2	3			3		3	3	3						3
1				1	1	1			1		1	3	3				5		4
4,290	18	2,090	70	1,618	4,646	5,286	2,308	661	3,797	1,632	2,165	5,047	5,041	6	133	1,087	41,466	57	2,826
227	1	137		89	287	200	95		228	41	184	200	200		9	75	5,000		117
16		3		13	10	16	12		16	3	13	16	16		1	10	721		33
9		9			13	14			6	6		13	13		1	5	50		4
13		8		5	13	13	7		10	10		13	13		1		100		24
4		4			2	4	2		3		3	4	4		1	4	35		18
9		9			8	11	2		9	8	1	9	9		2		67	1	8
10		10			9	9			9	9		9	9		2	12	175		7
800		630	21	160	1,177	1,202	164	602	813	545	268	1,192	1,192		11	110	520		8
					13	13			2		2	2	2		2	10	50		9
13			13		13	13	13		12	12		12	12		1		200		23
73		47		29	80	50	32		50	24	26	80	80		4	25	1,200		60
10				10	10	10	10		16	8	8	10	10		1		200		53
35		23	1	12	34	35	12	20	42	32	10	34	34		1		105		13
12				12	11	10	11		8	8		12	12		1		75		29
44		3		41	41	44	41		35	21	14	41	41		2	3	300		79
890	8	519	16	349	918	1,015	818		702	4	758	890	890		6	293	4,825		17
77				77	77	77			77	77		77	77		1	10	400		17
34				34	30	30			30		30	20	20		2	4	2,000		18
71		5		66	71	71			71	71		82	82		4	10	1,200		19

* Gasoline motor.

† Includes 6 electric and 5 steam.

‡ Inclined cable cars.

§ Includes 1 five-motor equipment.

|| Cars furnished and operated by another company.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

		NUMBER OF CARS.											LOCOMOTIVES, ELECTRIC AND STEAM.				
Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprin-klers.	Motor cars.	Trail-ers.	Kind.	No.	
			Combination.					Parlor, sleep-ing, dining, and private.									
			Total.	Closed.	Open.	Closed and open.	Pas-senger and ex-press, etc.										
OHIO—Continued.																	
21	Cleveland, Painesville and Eastern....	33	26	23	3				4	2		1	33				
22	Columbus, Urbana and Western.....	4	3	3						1			4				
23	Columbus, New Albany and Johnstown.....	6	5	3			2						5	1			
24	Columbus Railway and Light.....	442	403	227	175			1	2	29	3	5	411	31			
25	Ohio and Southern.....	10	3	2				1	5	2			10				
26	Seloto Valley Traction.....	42	14	14					9	18			18	24			
27	Columbus, Delaware and Marion.....	45	37	23	14				3	3	2		45				
28	Ohio Electric Railway.....	262	192	126	58		6	2	19	68		2	199	83	Steam	2	
29	City Railway.....	182	176	70	90		16				3		172	10			
30	Peoples Railway.....	116	112	56	56					2			105	11			
31	Oakwood Street Railway.....	31	29				29					2	27	4			
32	Dayton and Troy.....	31	13				5	8	15	2	1		19	12			
33	Dayton, Covington and Piqua.....	16	10	6	2		2		2	4			12	4			
34	Dayton and Xenia.....	18	14	8	4		2		1	1	1	1	17	1			
35	Passaic Gas and Electric.....	4	4	2	2								4				
36	Columbus, Magnette Springs and Northern.....	4	2				2		1	1			4				
37	United Electric.....	7	7	3	2		2						7				
38	East Liverpool Traction and Light.....	47	43	26	17				1	2		1	47				
39	Toledo, Fostoria and Findlay.....	10	9	4	3			2		1			8	2			
40	Fremont City Railway.....	2	2	1	1								2				
41	Leicester Traction and Power.....	22	20	12	7			1	1				15	7			
42	Lelinton and Frankfort.....	2	2	1				1					2				
43	Western Ohio Railway.....	43	19					19	22	2			27	16			
44	Lorain Street Railroad.....	23	20	10					1	2			22	1			
45	Mayfield Railway, Light and Power.....	30	27	18					1	1	1		30				
46	Cincinnati, Hamilton and Dayton.....	4	4	2	2								4				
47	Mount Vernon Railway and Light.....	19	17	4	7		6			2			9	10			
48	Snodgrass, Newark and Mansfield.....	17	4					4	1	12			5	12			
49	Cleveland, Painesville and Ashland.....	14	12	12					1	1			14				
50	Ohio River Electric.....	13	12	2	6		4			1			13				
51	Portsmouth Street Railroad.....	30	27	16	11					2	1		23	7			
52	Victory Park Railway.....	4	4	4	4								4				
53	Salem Electric Railway.....	6	6	4	2								6				
54	Springfield Railway.....	58	55	39	16					2		1	58				
55	Springfield, Troy and Piqua.....	14	13	5	2			6	1				9	5			
56	Washington Traction.....	2	2	1				1					2				
57	Springfield and Xenia.....	5	5	3				2					5				
58	Steubenville and Wheeling.....	14	11	1	7				1	2			9	6			
59	Steubenville and East Liverpool.....	34	32	16	16						1		34				
60	Electric Railway and Power.....	12	11	3	1		7			3			11				
61	Tiffin, Fostoria and Eastern.....	15	11	2	4		1	4			1		10	5			
62	Toledo Railway and Light.....	274	249	197	52					18			264	13			
63	Toledo Urban and Interurban.....	37	28	26	2				3	2		2	37				
64	Toledo and Indiana.....	13	9	9									13				
65	Lake Shore.....	114	76	59	5		12		6	30		2	87	27			
66	Manumee Valley Railway and Light.....	7	4	4					1	2			7				
67	Toledo, Port Clinton and Lakeside.....	36	10	6			4		18	8			12	24	(?)	2	
68	Toledo and Western.....	128	17	8	3		6		108	2		1	22	108	(?)	6	
69	Toledo, Ottawa Beach and Northern.....	10											7	5			
70	Wellston and Jackson Belt.....	12	12	12				2					7				
71	Youngstown and Southern.....	26	4	2				2	21		1		6	20	Steam	1	
72	Mahoning and Shenango.....	241	199	124	72		3		5	31	1	5	213	28			
73	Southeastern Ohio Railway.....	18	15	13	2				1	2			12	6			
OKLAHOMA.																	
Total for state.....		146	117	71	65		1		8	21			112	34	Elec.	1	
1	Enid City Railway.....	10	9	4	5					1			10				
2	Griffin Railway.....	11	9	5	4					2			6	5			
3	Chickaw Railway.....	14	8	8						2			11	3			
4	Muskogee Electric Traction.....	22	17	8	4			1	4				18	4			
5	Oklahoma Inter-Urban Traction.....	3	2							1			2	1			
6	Oklahoma Railway.....	64	52	33	10					12			43	21	Elec.	1	
7	Shawnee-Terrace Traction.....	13	11	7	4					2			13				
8	Tulsa Street Railway.....	9	9	4	5								9				
OREGON.																	
Total for state.....		670	466	323	129		10	3	1	179	18	2	5	435	235		410
1	Albany Street Railway.....	1	1	1										1			
2	Astoria Electric.....	21	9	4	2		3			12			9	12	Elec.	1	
3	Portland, Eugene and Eastern Rail-way.....	3	3	3									3				
4	Forest Grove Transportation.....	5	3	2			1		2				5				
5	Portland General Electric (Oregon City Division).....	9	2	2					7				2	7			
6	Portland Railway.....	345	322	248	71		3		17		2	4	322	23			
7	Portland Railway, Light and Power.....	267	110	55	51		3	3	153	3		1	77	190	(?)	9	
8	Portland General Electric (Salem division).....	19	16	8	5		3			3			17	2			

1 Equipped with pilots.

2 Includes 1 electric and 1 steam.

3 Includes 5 electric and 1 steam.

4 Cars rented.

GENERAL TABLES.

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EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.												NUMBER OF—						Miles of tele- phone line ex- clusively for oper- ation of road.	Number.
Motor equipments for motor cars.						With brakes.			Heated.			Lighted.			Lamps for lighting of- fices, power houses, shops, car houses, ways, etc.				
Total.	One mo- tor.	Two mo- tor.	Three mo- tor.	Four mo- tor.	With bend- ers.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.	Car houses.	Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).	
33	1	1		31	30	33	31		27	14	13	33	33		3	33	891		
4		1		3	3	4	3		3	2	1	4	4		1		35		
5		4		1	5	5	5		5		5	5	5		1		30		
411		353		48	434	348	94		249	244	5	424	424		6				
10		10				10	1		5	2	3	3	3		1	12	1,000		
17				17	17	41	38		17	14	3	17	17		1		500		
45		23		22	18	45	18		33	5	28	45	45		2	31	2,650		
196		53		143	196	279	115		201	93	108	228	228	2	4	20	400		
99		99			106	150		16	86	53	81	176	176		3	60	1,900		
59		59			87	116			53	53		114	114		1		150		
27		26		1	26	31	1		25	25		30	30		2	14	340		
18		6		12	18	30	25		13	5	8	18	18		1	12	320		
12		2		10	12	16	12		10	10		12	12		1		400		
17		11		6	16	17	18		11	11		16	16		1		120		
4				4	4	4	3		2	2		4	4		1		30		
4				4	3				2	2		2	2		1				
6		6			7	7			5	4	1	7	7		1	2	40		
46		46			46	46		5	28	21	7	46	46		1	12	300		
8		8			6	10	9		7	1	6	10	10		1		575		
2		2				2			1	1		2	2		2		50		
13		14				21	3		14	13	1	22	22		1				
2		2		1	2	2			2	2		2	2		1				
25				25	25	43	27		26	9	17	27	27		1	21	1,300		
22		4		18	20	23	19		20	10	10	23	23		1		300		
30		13		17		30	4		30	5	25	30	30		1	15	360		
9		9			9	17			6	4	2	17	17		1	3	000		
14				14	13	14	14		13		13	14	14		1	3	75		
12		12				10	2		6	6		12	12		1		151		
20		13		7	1	20			16	16		27	27		1	26	1,000		
4		4				6			4		4	4	4		1		30		
6		6				6			4		4	6	6		1	6	10		
28		50		8	55	56	8		40	40		57	57		2	22	1,114	30	
9				9	17	12	7	2	7	6	1	14	14		1	5	100		
2		2		2	2	2			2	2		2	2		1		20		
5				5	5	5	5		5	1	4	5	5		1	2	50		
9		9			15	14	5		8	4		12	12		1	2	50		
34		22		11	33	33	10		17	16		33	33		1	20	1,115	6	
11		10				12			12	4	12	12	12		1	1	132		
10		10				15			11		11	15	15		3	5	125		
254		244		1	254	267	105	4	187	187		254	254		4	26	1,600		
35		14		21	33	33	21		33	13	20	35	35		2	9			
13				13	12	13	13		13	1	12	13	13		1	30	550		
87		25		62	76	114	62		91	10	81	82	82		3	20	1,000		
7		2		5	7	7	5		5		5	7	7		1		30		
12				12	12	30	20		12		12	12	12		1	4	330		
22		6		16	22	128	117		20		20	24	24		1	10	250		
7		6			12	12	12		14	7	7	12	12		1		25		
5				5	5	5	5		5	5		5	5		1	2	50		
170	1	90		73	135	145	74		140	132	14	222	222		4	56	2,344		
12		4		8	12	15	14		11	3	8	16	16		2		1,500		
112	17	70		25	111	139	56		72	31	11	123	123		8	21	1,640		
10	4	6			9	9			4	4		9	9		1		1,100		
6		6				6			5		5	6	6		1	5	42		
11		6		5	10	11	11		9	8	1	11	11		1		100		
18		18			8	21	1		8		8	17	17		1		200		
2		2				2			2		2	2	2		1				
43		21		20	64	61	38		34	33		53	53		1	10	125		
13	10	3			11	11	3		7	7		13	13		1		32		
9	3	6			9	9			4	4		9	9		1		50		
433	4	351		78	422	648	334	16	50	49	1	469	468	1	16	10	1,300	10	
9		9			9	9			1		1	1		1	1		300		
3		3			3	3	3		3	3		3	3		1		15		
5	2	3			5	5			5	5		5	5		2		3		
2		2				2			2	2		2	2		2		20		
320		293		27	316	345	85	16	12	12		322	322		7	3	368	10	
77		29		51	73	265	206		31	31		110	110		2	2	300		
17		15		16		17			17			17	17		2		100		

* Equipped with wheel guards.

* Includes 7 electric and 3 steam.

* Includes 6 electric and 3 steam.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.															LOCOMOTIVES, ELECTRIC AND STEAM.	
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprin-klers.	Motor cars.	Trail-ers.	Kind.	No.		
			Combination.															
			Total.	Closed.	Open.	Closed and open.	Passenger and ex-press, etc.	Parlor, sleep-ing, dining, and private.										
PENNSYLVANIA.																		
	Total for state.....	9,141	7,807	4,778	2,981	90	75	7	412	561	158	203	8,200	941			110	
1	Lehigh Valley Transit.....	129	115	76	38			1			8	9	7	130	9			
2	Altoona and Logan Valley.....	103	91	61	30						7	2	3	90	13			
3	Pittsburg and Beaver.....	(?)																
4	Beaver Valley Traction.....	47	41	27	14				1	3			2	45	2			
5	Patterson Heights Street Railway.....	1	1	1										1				
6	Columbia and Montour.....	18	14	9	3	2				2			2	13	5			
7	Butler Passenger Railway.....	25	23	10	4	9				2				25				
8	Pittsburg and Butler.....	13	10	5			5			3				10	3	Steam	1	
9	Carlisle and Mount Holly.....	13	10	3						3				8	5			
10	Chambersburg and Gettysburg.....	11	11	3	4	4								11				
11	Westside Electric Street Railway.....	3	3	2	1									3				
12	Webster, Monaca, etc.....	9	7	4	3					1			1	9				
13	Chester Traction.....	94	87	47	40					3	1		3	94				
14	Philadelphia and Chester.....	4	4	2	2									4				
15	Clarton Street Railway.....	2	2	2										2				
16	Philadelphia, Gatesville and Lan-caster.....	5		2						3				2	3			
17	Corry and Columbus.....	5	5	3	2									5				
18	Blue Ridge Traction.....	8	6	3		2				3				6	2			
19	Danville and Sunbury.....	2	2	1				1						2				
20	Westmoreland County Railway.....	3	4	4										4	1			
21	Philadelphia and Easton.....	13	8	6					1	3		1		13				
22	DuBois Traction.....	12	11	6	4		1							12				
23	United Traction Street Railway.....	3	3	2	1									2	1			
24	Bangor and Portland.....	7	6	3	1					1				6	1			
25	Eastern Transit.....	110	102	31	51	20				5	2	1		97	13			
26	Northampton Traction.....	19	15	9	6					2				19				
27	Whitehall Street Railway.....	(?)																
28	Pennsylvania and Maryland.....	1	1				1							1				
29	Erne Traction.....	22	7	3			4		13			1		10	12			
30	Conemaugh and Erie.....	12	9	3			6			2		1		11	1			
31	Gettysburg Transit.....	7	6		6									6	1			
32	Schuylkill Railway.....	49	40	19	21	6				1			2	49				
33	Pittsburg, McKeesport and Greensburg.....	33	31	14	17					2				33				
34	Danville and Bloomsburg.....	7	5	2	2		1						1	6	1			
35	Hannover and Meshers-town.....	10	10											10				
36	Central Pennsylvania Traction.....	137	110	80	37	2				12	2	4		137				
37	Lehigh Traction.....	30	23	8	15					3	2	2		26	4			
38	Wilkes-Barre and Hazleton.....	15	6				6			9			2	7	8			
39	Hummelstown and Campbellstown.....	6	4	2			2			2				5	1			
40	Homestead and Mifflin.....	7	6	3	3					1				6	1			
41	Juniata Valley Electric.....	4	4	2	2									4				
42	Indiana County Street Railway.....	8	5	5	3					3				8				
43	Jersey Shore Electric.....	14	7	7						6	1			8	6			
44	Jersey Shore and Antis Fort.....	3	2				2		1					3				
45	Cambria Inclined Plane.....	2	2												2			
46	Johnstown Passenger Railway.....	110	106	66	40					2	2	2		98	12			
47	West Chester, Kennett and Wilming-ton.....	11	7	7						2				11				
48	Kittanning and Leeburg.....	11	10	8	2				1					11				
49	Conestoga Traction.....	126	91	46	30		15			24	2	2		106	20			
50	Lafayette Street Railway.....	7	7	3	3		1							4	3			
51	Lebanon Valley Railway.....	22	19	10	9					1	1	1		22				
52	Pittsburg and Allegheny Valley.....	4	3				3							4				
53	Valley Traction.....	31	27	24	3					3			1	31				
54	Lewistown and Reedsville.....	18	17	17										17	1			
55	Schuylkill Traction.....	12	9	6	3					2				12	4			
56	Lewistown and Williams Valley.....	8	8	4	4									8				
57	Oakdale and McDonald.....	2	2	2										2				
58	Highland Grove Traction.....	4	4	4										4				
59	Pittsburg and Westmoreland.....	4	3	3						1				4				
60	Lancaster and Southern.....	2	2	1			1							2				
61	Carbon Street Railway.....	20	16	8	8					3			1	17	3			
62	Meadville Traction.....	13	11	8	3					1			1	12	1			
63	Meadville and Cambridge Springs.....	5	4	4										5				
64	Lancaster and York Furnace.....	5	4	2			2		1					5				
65	Lewistown, Milton and Watson-town.....	9	8	4	4					1				8	1			
66	Montoursville Passenger Railway.....	8	7	3	4									6	2			
67	Peoples Street Railway.....	12	10	6	4					1		1		11	1			
68	Bucks County Electric.....	17	11	9	2					3	1	1		17				
69	Schuylkill Valley Traction.....	94	74	41	32			1	2	2	2	5		84				
70	Montgomery Traction.....	8	6	6						1				7	1			
71	Montgomery County Rapid Transit.....	3	2	2						1				2	1			
72	Citizens Traction.....	50	48	28	20					9			2	53	6			
73	Northern Cambria Street Railway.....	8	7	3			4						1	8				
74	State Belt Electric Railway.....	11	9	7	2					1	1		1	11				
75	Philadelphia Rapid Transit.....	3,824	3,435	2,193	1,242				13	187	103	86		3,815	9			
76	Southwestern Street Railway.....	24	22	6	16					1			1	24				
77	Philadelphia, Bristol and Trenton.....	14	12	7	4			1				1		14				
78	Philadelphia and West Chester.....	38	28	21	7				1	5	2	2		38				

1 Includes 3 electric and 7 steam.

2 Cars rented.

3 Equipped with pilots.

GENERAL TABLES.

447

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.											NUMBER OF—				Miles of tele- phone line ex- clusively for oper- ation of road.	Number.			
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.			Car houses.			Lamps for lighting of- fices, power shops, car ways, etc.		
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fend- ers.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.		Oil, gas, etc.		Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).
7,920	27	5,902	127	1,864	7,133	8,970	2,321	903	5,081	4,273	808	8,501	8,468	33	226	3,643	93,577	37	847
130		61		69	123	139	64		123	15	108	139	139		7	75	1,200	2	77
79		60		19	91	103	19	8	82	62		98	98		2	25	415		20
45		33		12	25	47		12	28	27	1	42	42		1	30	1,825		
1					1	14			11	11		14	14		1		30		
13		11		2	10	25	4		23	23		25	25		2		300		
25		25				10	10		10	10		10	10		1	6	500		
10		6		2	13	13	2	2	3	3		10	10		1	10	230		33
8		10		1	11	10			7	7	4	11	11		1		15		8
11		10				3			2	2		3	3				215		10
3		3				8		2	4	4		8	8		1		20		11
8		8				94	26	3	47	47		94	94		2		210		12
47		21		26	90	4			2	2		4	4						13
4		4			4	2		2	2	2		2	2		1				14
2		2				5	2	2	2	2	2	2	2		1		6		15
2				2					2	2	2	2	2		1				16
5		4	1		3	4	1		3	3		5	5		1				17
6		6			3	8			3	3		6	6		1	10	244		18
2		2			2	2			2	2		2	2						19
4				4		4			4	4	4	4	4		1	22	14		20
13		3		10		13	9		13	9		13	13		1		330		32
12		11		1	7	11	1		7	7		11	11		1		25		21
2		2			2	3			2	2		3	3				40		22
6		6			6	7			5	5		6	6		1		35		23
73		60		13	94	107	13		53	52	1	108	108		6	60	3,807		25
19		12		7	15	15	7		9	9		17	17		1	5	3,500		26
1																			27
1																			28
9				9	18	21	9		7	2	3	21	21		1		18		29
11		1		10	9	10	10		9	3		11	11		1		325		30
6		6				6			6	6		6	6		1		500	33	31
49		35		14	15	49	11		29	19	10	49	49		3		12		32
33		23		10	5	33	5	2	14	3		23	23		2	25	1,000		33
6		1		5		5			3	3		5	5		1		45		34
8		8				8			3	3	3	8	8		1	28	300		35
137		98		39	131	137	36		131	131		131	131		2	110	950		36
24		24			19	20			8	8	8	28	28		2		500		37
7					16	7	15		7	7		7	7		1		150		38
5		2		3	5	5	3		5	5		5	5		1		300		39
6		6			6	6		6	3	2		6	6		1		25		40
4		4			4	4			2	2		4	4		1				41
8		1			4	6	5		5	5		5	5		1				42
8		8			7	13			7	7		7	7		1		30		43
3		1		2		3	2		2	2		3	3		1		10		44
96		90		8	80	110	5		66	8		108	108		2				45
11		6		5	7	11	8		8	8		11	11		1	15	150		46
11		11			11	11			8	8		11	11		1		200		47
106		77		29	108	126	31		61	43	18	112	112		2		30		48
4		4				4			4	4		7	7		1		30		49
16		10		3	19	22	1		12	9	3	22	22		1		250		50
4		1			3	4	3		3	1		4	4		1		300		51
27		10		17	27	26	18		17	17	9	27	27		2	3	420		52
17		11		6	17	17	10		17	17		17	17		2		100		53
8		8			8	12			6	5	1	9	9		1	6	80		54
8		8			8	8			4	4		8	8		1		50		55
2		2			2	2		2	2	2		2	2		1		60		56
3		3			4	4			4	4		4	4		1		100		57
4		4				4			3	3		4	4		1		20		58
2				2		2			8	8		2	2		2				59
16		13		3	16	13	3		11	11		16	16		2		100		60
12		12			11	12			11	11		11	11		1	6	40		61
8		1		4		5			4	4		5	5		1		25		62
5		8			9	9	2		2	2		5	5		1		120		63
6		6			6	6			10	10		8	8		1		210		64
10		9		1	6	6			10	10		10	10		2		200		65
17		17			16	17			14	14	8	16	16		2		103		66
73		47		20	15	84	26		42	42		82	82		3		150		67
6		2			6	7	4		6	6		6	6		1		250		68
2					2	2			2	2		2	2		2				69
51		31		20	57	57	15		28	28		57	57		2	68	3,832		70
7				7	7	7		3	7	7		7	7		1		255		71
9		4		5	10	10			7	7	5	9	9		1		400		72
3,815	1	2,926	96	802	3,895	3,821	1,278		2,210	2,210		3,815	3,815		29	2,296	45,200		73
23		23			23	24			6	6		24	24		1		50		74
14		9		5	13	14			9	9		14	14		2		100		75
37		3		34	34	34	31	1	21	21		34	34		2	10	660		76

* Inclined-cable cars.

* Includes 1 six-motor equipment.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.											LOCOMOTIVES, ELECTRIC AND STEAM.		
		Passenger.													
		Aggregate.	Total.		Combination.		Parlor, sleeping, dining, and private.	Express, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweepers and sprinklers.	Motor cars.	Trailers.	Kind.	No.
			Closed.	Open.	Closed and open.	Passenger and express, etc.									
PENNSYLVANIA—Continued.															
79	Holmesburg, Tacony and Frankford	45	40	13	27			2	1	2	45				
80	Fairmount Park Transportation	74	60	19	50			4			31	41			
81	Delaware County and Philadelphia	27	24	12	12			2		1	26	1			
82	Philadelphia and Western	26	22	22				2	4		25	3	Steam	1	
83	Centre and Clearfield	14	10	5		5					14				
84	Montgomery and Chester	9	9	3	6	2					9				
85	Pittsburg Railway	2,125	1,679	1,042	625	1	3	305	107		34	1,524	600	Steam	4
86	St. Clair Incline Plane	2	2			2									
87	Duquesne Incline Plane	2	2												
88	Monongahela Incline Plane	4	2					2							
89	West Penn Railway	118	103	56	47				9	1	5	118			
90	Pottstown and Reading	24	19	8	11				1			13	7		
91	Pottstown and Northern	4	2	2				1	4			4			
92	Pottsville Union Traction	55	46	20	24	2			4	1	2	51	2		
93	Jefferson Traction	13	12	12					1			13			
94	United Traction	124	114	63	50		1		2	2	6	124			
95	Newport Mountain Railway	8	7	4	3				1			8			
96	Mt. Penn Gravity Railroad	10	9	1	8						1	3	7	Steam	1
97	Albiontown and Reading	42	37	17	20			1	3	1		42			
98	Oley Valley Railway	6	6	5			1					6			
99	Waverly, Sayre and Athens	19	17	12	5						1	19			
100	Scranton Railway	228	186	138	48			2	33		7	190	38	Elec.	1
101	Lackawanna and Wyoming Valley	72	30	23		7		41	1			35	37	Elec.	2
102	Shenandoah and Mount Carmel	31	28	17	11				2	1		29	2		
103	Shenandoah and Edgewood	21	19	10	8		1		1		1	21			
104	Stroudsburg Passenger Railway	7	6	4	2					1		5	2		
105	Stroudsburg and Water Gap	3	2	2					1			3			
106	Scranton and Northampton	9	7	4	3				1	1		8	1		
107	Eastern Pennsylvania Railway	38	34	15	16	2		1	3		1	30	2		
108	Albion Valley Street Railway	21	18	18					2		1	21			
109	Trenton Electric Traction	16	8	4	2	2			6			10	6		
110	Warren Street Railway	21	18	10	7		1		1	1		21			
111	Warren and Jamestown	5	5	5					1			6			
112	Washington and Leesport	28	25	17	8			1	1	1		28			
113	Chenbersburg, Greenfield and Wagonersburg	12	10	5	3		2		2			10	2		
114	West Chester Street Railway	21	18	15	2		1	3				19	2		
115	Wilkes-Barre and Wyoming Valley	144	132	60	63				8		4	137			
116	Wilkes-Barre, Dallas and Harvey's Lake	17	12	11			1	1	2	1	1	10	7		
117	Valhaugeton Traction	6	6	2	4							6			
118	South Side Passenger Railway	46	43	28	15					1	2	46			
119	Williamsport Passenger Railway	2	2	2								2			
120	East End Passenger Railway	6	4	4				1	1			4	2		
121	Traction, New Hope and Lambertville	6	4	4								6			
122	York Railways	67	59	32	27			4	3		1	67			
RHODE ISLAND.															
Total for state		1,471	952	488	428	30	5	1	87	67	65	1,049	122	Elec.	4
1	Sea View Railroad	44	34	4	12	18			7	1	2	19	25		
2	Newport and Providence	12	10	4	6				1	1		12			
3	Rhode Island Company	918	829	426	390		4		45	64	60	950	48	Elec.	4
4	New York, New Haven and Hartford	54	49	37		12			5			31	23		
5	Providence and Pawtucket	49	17	16			1	30		2		23	26		
6	Pawtucket Valley Street Railway	14	13	1	11		1		1			14			
SOUTH CAROLINA.															
Total for state		180	176	113	47	15	1		4	9		170	19		
1	Anderson Traction	13	11	7	3		1		2	2		12	1		
2	Augusta and Aiken	13	11	11					2			13			
3	Charleston Consolidated Railway, Gas and Electric	83	79	58	13	8			2	2		71	12		
4	Columbia Electric Street Railway, Light and Power	45	43	10	24					2		45			
5	Greenville Traction	20	18	6	5	7				2		19	1		
6	Rock Hill Water, etc., Light and Railway	4	4	4								4			
7	Spartanburg Railway, Gas and Electric	11	10	8	2					1		10	1		
SOUTH DAKOTA.															
Total for state		5	3			3				2		3	2		
1	Sioux Falls Traction	5	3			3				2		3	2		

Includes 8 inclined-cable cars.

Inclined-cable cars.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.												NUMBER OF—					Miles of tele- phone line ex- clusively for oper- ation of road.	Number.	
Motor equipments for motor cars.					With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of- fices, power shops, car houses, ways, etc.				
Total.	One mo- tor.	Two mo- tor.	Three mo- tor.	Four mo- tor.	With hand- brake.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.		Oil, gas, etc.	Arc.			Incandes- cent.	Other (Nernst, vacuum, vapor).
42		42		42		45			13	13		41	41		1	170		79	
32		1		31	23	74		31	10	10		70	70		1	1,200		80	
19		19				27			12	12		23	23		1	75		81	
28				25		28	25		22	22		24	24		1	910		82	
10		10			3	10	10		4	4		10	10		1	355		83	
9		9				9			5	5		9	9		2	100		84	
1,490	1	1,251	34	204	1,729	2,001	196	733	1,060	749	301	1,773	1,758	15	31	455		85	
						2			2	2	2	2	2	2		15		86	
																30		87	
112		99		43	17	112	11	96	63	41	2	112	112		6	2,000		88	
13		13				19			8	4	4	13	13		1	450		89	
4		4				4			2	2		4	4		1	15		90	
51		25		26		51	23		49	49		49	49		1	419		91	
13		6		7	2	13	7		13	13		13	13		2	500		92	
63		26		37	116	124	40		63	63		124	124		5	250		93	
7		7			8	8			1			7	7		1	12		94	
3		3				9	9		1		1	9	9		1	40		95	
42		30		12	41	42	10		18	11	7	42	42		2	2,400		96	
6				6	6	6	6		6	6		6	6		1	30		97	
18		14		4	17	18	4		12	8	4	18	18		1	75		98	
166		107		59	183	228	32		133	20	113	188	188		3	1,635		99	
55		34		1		72	72		35	35		35	35		1	1,600		100	
29		36		3		29			17	1	16	29	29		1	300		101	
4		4				4			19	19		20	20		1	600		102	
3		1		2		3	2		3	1	2	4	4	1	2	10		103	
7					7	7			2	2		2	2		1	5		104	
36		17		19	38	38	27		25	25		35	35		2	400		105	
20		10		10	20	20	10		18	6	12	20	20		2	25		106	
8		8			10	10			4	4		10	10		1	100		107	
29		16		4	14	20			12	12		20	20		2	6		108	
6					6	6	6		6	6		6	6		2	27		109	
28		24		4		28	4		18	7	11	28	28		2	75		110	
10		4		6		10	6		6	6		10	10		1	100	2	111	
16		5		11		18	11		14	14		15	15		2	200		112	
137		103		32		144	25		69	69		144	144		4	1,645		113	
8				8		17	8		1	1		15	15		1	240		114	
																		115	
6		6			6	6			2	2	2	6	6		1	150		116	
																25		117	
37	6	21		34		37	10		28	28		34	34		2			118	
2		2		2		2			2	2		2	2		1	10		119	
4				4		4	4		4	1		4	4		1	50		120	
67		31		36	67	67	14		32		32	67	67		4	300		121	
																		122	
812	7	394		411	1,018	1,164	720	1	522	522		967	967		24	142	10,008	57	
15		1		14	14	44	24		8	8		39	39		1	205		19	
11		10				11	9		4	4		10	10		1	65		20	
720		394		356	938	994	587		434	434		829	829		15	130	9,178	12	
31		7		24	81	54	54		54	54		54	54		1	170		4	
21		4		17	21	47	46	1	21	21		21	21		2	400		5	
14		8		14		14			1	1		14	14		1	85		6	
180	29	124		16	124	177	26		41	41		181	177	4	7	1,210		35	
11		8		3		11	3		3	3		11	11		1	50		10	
13				11		13	13		13	13		13	13		1	103		18	
71	29	42		79		70	4		17	17		70	70		7	15		7	
45		45		45		39	6					45	45		1	5	400	4	
19		19				20						19	19			1	80	5	
10		10				4						4	4		1		275	7	
10		10				11			8	8		10	10		1				
3		3			3	3			3			3	3						
3		3			3	3			3			3	3						

* Cars rented.

* Equipped with pilots.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.			
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprinklers.	Motor cars.	Trail-ers.	Kind.	No.	
			Total.	Closed.	Open.	Combination.		Parlor, sleeping, dining, and private.									
						Closed and open.	Pass-enger and ex-press, etc.										
TENNESSEE.																	
	Total for state.....	747	684	414	238	12			5	52	1	5	651	96			
1	Bristol Belt Line.....	9	8	5	3					1			8	1			
2	Chattanooga Railways.....	82	78	70	8				1	3			82				
3	Clarksville Railway and Light.....	7	7	3	4								5	2			
4	Jackson Railway and Light.....	20	18	10	8					2			13	7			
5	Johnson City Traction.....	11	10	6	4				1				8	3			
6	Knoxville Railway and Light.....	86	70	37	26	7			2	13		1	66	20			
7	Lookout Mountain Railway.....	5	4	4						1			3	12			
8	Memphis Street Railway.....	297	275	161	114				1	18		3	269	28			
9	Nashville Railway and Light.....	230	214	138	71	5				14	1	1	197	33			
TEXAS.																	
	Total for state.....	827	779	407	309	56	6	1	5	41		2	710	117			
1	Austin Electric Railway.....	32	29	22	7					3			24	8			
2	Beaumont Traction.....	20	20	14	6								20				
3	Bonham Electric Railway, Light and Power.....	5	5	2	3								2	3			
4	Corpuscana Transit.....	4	4	4									4				
5	Dallas Consolidated.....	115	113	63	50					1		1	115				
6	Metropolitan Street Railway.....	21	21	12	9								21				
7	Rapid Transit.....	30	30	11	19								30				
8	Denton and Sherman.....	19	18	8	7		3			1			12	7			
9	Denton Interurban Railway and Power Plant.....	3	3	3									3				
10	El Paso Electric Railway.....	46	46		20	26							40	6			
11	Citizens Railway and Light.....	24	23	15	8					1			24				
12	Northern Texas Traction.....	110	104	81	21		2		2	4			106	5			
13	Galveston Electric.....	65	60	30	30					5			62	3			
14	Houston Electric.....	130	121	65	52	4				8		1	104	20			
15	Laredo Electric and Railway.....	9	8	2	5			1		1			9				
16	Longview and Junction.....	2	2	1	1									2			
17	Mineral Wells and Lakewood Park.....	3	3		3								3				
18	Paris Transit.....	10	9	6	2		1			1			9	1			
19	San Antonio Traction.....	128	116	39	52	26				12			93	35			
20	Seguin Traction.....	5	5	1	1				3				5	7			
21	Belton and Temple Traction.....	16	12	4	6					4			12				
22	Citizens Railway.....	21	21	15	3								21				
23	Waxahachie Street Railway.....	9	9	5	4									9			
UTAH.																	
	Total for state.....	198	151	106	45					38	3	6	157	41		4	
1	Ogden Rapid Transit.....	25	23	21	2					1	1		18	7	Steam	1	
2	Salt Lake and Utah Valley.....	2	2	2									2				
3	Utah Light and Railway.....	171	126	83	43					37	2	6	137	34	Elec.	3	
VERMONT.																	
	Total for state.....	150	126	68	64	3	11		11	10	9	3	135	24			
1	Barre and Montpelier.....	14	12	6	6							2	14				
2	Bellevue Falls and Saxtons River.....	11	9	2	4	3			1		1		10	1			
3	Bernington and North Adams.....	29	24	10	12		2		3	1	1		19	10			
4	Twin State Gas and Electric.....	9	8	4	4					1			8	1			
5	Burlington Traction.....	26	24	12	12						2		26				
6	Rutland Railway, Light and Power.....	32	26	8	15		3		1	3	1	1	28	4			
7	St. Albans Street Railway.....	13	9	2	6		1		3		1		9	4			
8	Springfield Electric.....	12	5	1	2		2		2	4	1		8	4			
9	Mount Mansfield Electric.....	6	3				3		1	1	1		6				
10	Military Post Street Railway.....	7	6		3						1		7				
VIRGINIA.																	
	Total for state.....	1,072	915	442	308	156	6	3	71	71	1	14	786	286		16	
1	Washington, Arlington and Falls Church.....	29	25	14	10		1		2	2			27	2			
2	Charlottesville and Albemarle.....	8	7	3	4					1			7	1			
3	Danville Railway and Electric.....	26	26	12	14								23	3			
4	Hampton Roads Traction.....	4	4										4				
5	Lynchburg Traction and Light.....	42	40	8	14	18				1	1		42				
6	Citizens Railway, Light and Power.....	11	11	7	4								8	3			
7	Newport News and Old Point Railway and Electric.....	97	83	44	38			1	11	1		2	64	33			
8	Norfolk City and Suburban.....	3	2	1		1			1				2	1			
9	Norfolk and Southern.....	38	32	13	19				5				23	13			
10	Norfolk and Ocean View.....	18	15	8	3	4				2			15	3			
11	Norfolk and Atlantic Terminal.....	81	77	31	39	7			3	1			41	40			
12	Norfolk and Portsmouth Traction.....	208	196	111	37	47			38	30		6	219	49			

1 Inclined-cable cars.

2 Equipped with wheel guards.

3 Gasoline motors.

GENERAL TABLES.

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EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—				Miles of tele- phone line ex- clusively for oper- ation of road.	Number.	
Motor equipments for motor cars.					With lead- ers.	With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of- fices, power shops, car houses, ways, etc.			
Total.	One motor.	Two motor.	Three motor.	Four motor.		Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.		Arc.	Incandes- cent.	Other (Nernst, vacuum vapor).	
649		497		152	101	733	204		250	350		718	718	11	279	9,340	4	3	
8		8				9			5	5		8	8	1		100		1	
22		55		27	7	82	30		65	65		82	82	1	75	2,500		2	
5		5				7						7	7	1		20		3	
13		13				20			10	10		18	18	1	4	5,200	4	4	
8		8				11			6	6		10	10	1		8		5	
06		63		3	50	80	7		44	44		86	86	1	22	53		6	
3		3				3	2		2	2		4	4	1		115		7	
208		201		08	290	293	94		161	161		280	280	2	78	344		8	
195		141		54	181	228	54		57	57		214	214	2	100	1,000		9	
709	44	572	8	85	443	796	114	1	131	130	1	796	779	16	27	163	8,961	142	86
24		24				32						30	30	1		60		12	
20		16		4		18	4					20	20	1		200		1	
2		2				5						5	5	1		250		2	
4		4				4		1	4	4		4	4	1		6		4	
115		109		6	115	100	15		63	63		115	115	1	25	95		5	
21		21			21	21	12		12	12		21	21	1				6	
30		30			30	30	11		11	11		30	30	1		54		7	
12		7		5	16	19	3		5	5		18	18	1	15	1,000		8	
3		3				1						3	3	1		12		9	
40		38		12	40	40	14					46	46	1	18	215	128	10	
24		16		8	28	24						24	24	2	12	50	7	11	
105		78		27	110	110	20		20	20		110	110	3	7	4,600		12	
62	21	41			62	62						62	62	2	15	300		13	
103	10	73		20	121	121	20					121	121	1	56	1,800		14	
9	9				9	9			1		1	9	9	1		60		15	
3	3				3	3						3	3	1				16	
93	1	84		10	93	10			6	6		9	9	1		7		17	
9		8			9	10						11	11	1		99		18	
93		84		10	93	10						118	118	1				19	
9		8		1	9	16	3					2	2	1				20	
21		21			21	21						13	13	2	6	200		21	
						9						21	21	1		50		22	
												9	9	1		3		23	
156		120	6	27	130	190	62		105	96	7	100	100	4	35	796		83	
18		18			6	17	6		17	15	2	23	23	1		50		1	
2	2				2	2			2		2	2	2	1		5		2	
126	1	102	6	27	122	171	56		96	83	3	144	144	2	25	743		3	
112		81		31	117	128	35		61	60	1	126	126	14	5	1,155		97	
8		8			12	12			8	8		12	12	1		35		14	
9		8		1	11	11			3	3		11	11	1		500		1	
12		7		5	15	17	5		10	10		17	17	2	8	70		2	
8		8			8	8			4	4		8	8	2		15		3	
24		24			24	24	6		12	12		24	24	2		25		4	
26		19			26	26	14		8	8		26	26	1		200		5	
7		7		7	10	12			3	3		10	10	1		200		6	
7		3		4	5	7	4		4	3	1	7	7	2		50		7	
4		3		1	4	3			3	3		5	5	2		60		8	
7		1		6	8	6	6		6	6		8	8					10	
749		615	15	119	751	956	257	1	618	605	13	962	962	27	100	6,181		197	
27		21		6	8	29	8		18	17	1	29	29	1		180		25	
7		7			7	8			3	3		7	7	1		250		2	
12		12			12	26			12	12		26	26	1		300		3	
4		4			4	4			4	4		4	4	1				4	
41		29	12		41	62	12		26	26		41	41	1	7	1,000		5	
8		8			11	11			7	7		11	11	1		30		6	
62		62		10	57	95	18		57	57		95	95	1	2	686		7	
2		2			2	2			2	2		2	2					8	
23		17		6	22	28	36	1	17	13	4	28	28	1	2	600		9	
15		15			15	15			12	12		15	15	1		60		10	
41		39		2	40	81	75		37	37		79	79	1		120		11	
196		192	2	2	189	198	86		138	135		207	207	3		150		12	

* Includes 3 electric and 1 steam.

* Includes 1 electric and 5 steam.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.											LOCOMOTIVES, ELECTRIC AND STEAM.			
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprinklers.	Motor cars.	Trail-ers.	Kind.	No.
			Total.	Closed.	Open.	Combination.		Parlor, sleep-ing, dining, and private.								
						Closed and open.	Pas-senger and ex-press, etc.									
VIRGINIA—Continued.																
13	Radford Water Power.	4	4	4									3	1	Steam	1
14	Richmond and Chesapeake Bay.	11	4				2						4	7	(1)	2
15	Virginia Passenger and Power.	65	62	26	23			1			2		44	21		
16	Richmond Passenger and Power.	144	131	49	50		32			7	4		106	38		
17	Richmond Traction.	100	96	28	45		25					2	73	27		
18	Richmond and Petersburg Electric.	9	8	6			2						8	1		
19	Roanoke Railway and Electric.	31	27	5	8		14			1	2		29	2		
20	Blue Ridge Light and Power.	8	8				8						8			
21	Tazewell Street Railway.	3	3										2	1		
22	Washington, Alexandria and Mt. Ver-non.	50	26	37				1	1	10		1	25	25		
23	Great Falls and Old Dominion.	22	15	14			1		2	5			9	13	Steam	3
WASHINGTON.																
	Total for state.	1,702	791	354	80	314	39	4	837	116	7	11	797	965		26
1	Grays Harbor Railway.	29	14	8	3		3						12	17		
2	Whatcom County Railway.	44	22	14	5		3			12			22	22	Elec.	3
3	Puget Sound International Railway.	20	16	15						1	2	1	20			
4	Olympia Light and Power.	14	8	4		4				1	5		8	6		
5	Loyal Railway.	2	2				2						2			
6	Seattle-Everett Interurban.	33	5	5						26	2		7	25		
7	Seattle Electric.	411	333	52	35	246				16	53		344	67		
8	Seattle, Renton and Southern.	47	20	18	2					26	1		22	25		
9	Washington Water Power.	132	113	77	1	29	5	1	12	2	3	2	117	15		
10	Spokane and Inland Empire.	572	87	64			21	2	457	25	1	2	81	491	(1)	15
11	Pacific Traction.	13	9	9					4				9	4	Steam	1
12	Puget Sound Electric.	201	28	21			7		173				15	186	Elec.	3
13	Tacoma Railway and Power.	235	126	67	28	30		1	108	1			7131	104	Elec.	4
14	Walla Walla Valley Traction.	9	8		2	4	2		1				7	2		
WEST VIRGINIA.																
	Total for state.	448	415	213	100	30	3		10	20		3	394	54		
1	Bluestone Traction.	5	4			4				1			4	1		
2	Kanawha Valley Traction.	30	30	8	8	14							30			
3	Fairmont and Clarksburg.	46	42	17	18	4	3		3	1			46			
4	Camden Interstate Railway.	46	42	29	9	4			2	2			46			
5	Mannington Light and Power.	2	2										2			
6	Union City.	12	12	6	6								12			
7	Salvation Railway.	2	2	2									2			
8	Newell Street Railway.	10	10	5	5								10			
9	Wetzel and Tyler Railway.	6	4							1			5			
10	Parkersburg, Marietta and Interurban.	55	50	26	24				1	3		1	53	2		
11	Tri-State Traction.	11	11	10	1								11			
12	City Railway.	42	40	20	20							1	41			
13	Wheeling Traction.	133	123	65	58				1	8		1	86	47		
14	City and Elm Grove.	38	34	14	20				2	2			36	2		
15	Pan Handle Traction.	10	8	9						1			10			
WISCONSIN.																
	Total for state.	1,181	954	750	191	3		1	6	153	17	21	901	280		97
1	Wisconsin Traction, Light, Heat and Power.	15	13	11	2					1	1		15			
2	Ashland Light, Power and Street Railway.	11	11	8	3								10	1		
3	Beloit Traction.	4	4	4									4			
4	Milwaukee Northern.	19	16	16						1	1	1	19			
5	Chippewa Valley Railway, Light and Power.	22	20	12	8					1	1		13	9		
6	Eastern Wisconsin Railway and Light.	27	24	18	6					2		1	17	10		
7	Green Bay Traction.	37	33	22	11				1	1	2		28	9		
8	Janesville Street Railway.	6	6	3		3							6			
9	Kenosha Electric Railway.	17	16	13	3					1			17			
10	La Crosse City Railway.	33	32	23	9							1	25	8		
11	La Crosse and Onalaska.	1	1										1			
12	Southern Wisconsin Railway.	40	29	18	11					9	2		40			
13	Manitowoc and Northern.	14	12	9	3				1	1			9	5		
14	Merrill Railway and Lighting.	4	4	4									4			
15	Milwaukee Electric Railway and Light.	710	529	437	91			1		162	7	12	571	139	(1)	7
16	Milwaukee Light, Heat and Traction.	123	119	119									20	64		
17	Winnebago Traction.	53	50	23	27					1	1	1	31	22		

¹ Equipped with pilots.
² Includes 1 electric and 1 steam.

³ Includes 19 electric and 7 steam.
⁴ Includes 61 cable-grip cars.

⁵ Includes 9 electric and 6 steam.
⁶ Includes 23 equipped with pilots.

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.												NUMBER OF—									
Motor equipments for motor cars.						With brakes.			Heated.			Lighted.			Car houses.	Lamps for lighting of— offices, power shops, car ways, etc.			Miles of tele- phone line ex- clusively for operation of road.	Number.	
Total.	One motor.	Two motor.	Three motor.	Four motor.	With fenders.	Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.		Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).			
3		2		1		4			3		3		3								
4				4	4	4	1		4	2	2		4	4		1			5	13	
44		17	1	26	62	64	25		42	62		62	62		1					14	
106		81		25	136	144	20		79	79		136	136		3	7			24	16	
73		73			98	98			53	53		98	98		2				7	17	
8				8	8	8			8	8		8	8		1				23	18	
29		25		4		29	12		20	20		28	28		1	9	2,000		19	19	
8					1	8			3		3	8			1		40		20	20	
2		8			1	3			2	2		2	2		1		5		21	21	
26		8		17	26	25	26		44	44		44	44		1	35	400		19	23	
9	1			8	9	20	14		7	7		15	15		1	21	270	16	14	23	
719		257		462	773	1,722	1,360	1	271	259	12	840	757	83	27	304	7,414	27	353		
12		5		7	12	21	14		11	11		14	13	1	1	6	170	24	5	1	
22		13		9	37	44	17		27	27		27	27		1	2	300		2	2	
20		9		11	19	20	9		4	3	1	20	20		1	14	667	3		3	
8					8	9		1				9	9		1		131			4	
2		2			2	2						2	2				30			5	
7		2			7	28						7	7		1		60		6	6	
274		83		191	335	402	241		2	2		332	288	64	8	178	4,073		97	7	
22		12		10	22	24	5					22	22		1		25		3	3	
117		72		45	112	132	102		115	115		117	117		1				9	9	
81				81	467	572	572		87	81	6	87	81	6	4	20	450		120	10	
9				9	9	13	12		9	9		9	9		1		50		11	11	
15				15	15	201	201		23	28	5	20	20		2	11	320		28	12	
123		47		76	131	235	179		4	4		135	123	12	4	32	1,118		5	13	
7		4		3	7	9	3		6			9			1	1			13	14	
364		258	1	106	240	442	120	41	249	189	60	431	331		23	62	4,030		59		
4		3	1		4	4			4	4		4	4		1				1		
30		26		4	30	30	16		22	22		30	30		1	15	1,100		2	2	
46		37		9	46	46	9		24	24		46	46		2		125		3	3	
46		33		13	46	46	32		35	29	6	46	46		3		2,000		22	4	
12		2			12	12		12	2	2		12	12				78		5	5	
2					2	2			2	2		2	2		1				6	6	
5		5		2	5	10			5	5		10	10		2		50		7	7	
5					5	6			5	4	5	10	10		2		20		8	8	
53		41		12	55	6	12		26	26		51	51		1	2	30		1	9	
11		8		3	11	11	3		10	10		11	11		3	10	200		16	10	
21		21			40	40		20	20	20		40	40		2		50		11	11	
81		54		27	86	132	27		65	32	33	128	128		1	9	250		12	12	
36		10		26	36	36	10	6	14	8	6	34	34		3	26	300		13	13	
10		1		9	10	10	9		9		9	10	10		1		100		14	14	
891	14	368	1	508	822	1,153	318	2	748	72	676	1,016	1,016		27	119	11,048	7	284		
15		15			14	8	9		11	3	8	14	14		1	11	241	7	12	1	
10	1				11	11			11		11	11	11		1		125			2	
4		4			4	4			4		4	4	4						3	3	
19				19	16	19	19		17	17		19	19		2	6	300		26	4	
13		7		4	22	22	6	2	12	12		20	20		1		125		14	5	
17		8		9	16	27	7		24	24		24	24		1	9	136		20	5	
28		18		10	16	25	8		20	20	19	23	23		2	12	551		24	7	
6		4			6	6			6		6	6	6		1		30		8	8	
17		17			16	17			16	16		16	16		2		15		9	9	
25		1		24	24	23			23	23		22	22		2	6	100		10	10	
1					1	1			1			1	1		1				11	11	
31		31			29	31			18		16	31	31		1		125		12	12	
9		6		3	9	12	3		13	13		13	13		1	6	80		6	13	
4					4	4			4	4		4	4		1	1	68		14	14	
571		189		412	552	710	151		628	1	637	571	571		6	45	6,004		236	15	
89		30		29	55	123	109		85		85	123	123		3	2	688		16	16	
31		24	1		28	53	6		30		30	53	53		1	17	1,825		27	17	

* Includes 8 cable-grip cars.

* Includes 1 electric and 6 steam.

* Includes 1 six-motor equipment.

* Includes 6 equipped with pilots.

STREET AND ELECTRIC RAILWAYS.

TABLE 185.—CARS AND MISCELLANEOUS

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF CARS.												LOCOMOTIVES, ELECTRIC AND STEAM.		
		Aggregate.	Passenger.						Ex-press, freight, and mail.	Work and miscellaneous.	Snow-plows.	Sweep-ers and sprinklers.	Motor cars.	Trail-ers.	Kind.	No.
			Total.	Closed.	Open.	Combination.		Parlor, sleeping, dining, and private.								
						Closed and open.	Pas-senger and ex-press, etc.									
18	Sheboygan Light, Power and Railway.	25	20	12	8				2	1	1	1	22	3		
19	Waupaca Electric Light and Railway.	11	7	1	6				2	2			4	7		
20	Waumau Street Railroad.	9	8	5	3						1		6	3		
WISCONSIN—Continued.																
OUTLYING DISTRICTS.		108	94	30	64	10			11	3			81	27		
HAWAII.																
Total for territory.		53	47	2	37	8			3	3			49	4		
1	Honolulu Rapid Transit and Land.	53	47	2	37	8			3	3			49	4		
PORTO RICO.																
Total.		55	47	28	17	2			8				32	23		
1	Tramway Stock.	14	14	5	9									14		
2	Ponce Railway and Light.	10	8		8				2				6	4		
3	San Juan Light and Transit.	31	25	23		2			6				26	5		

EQUIPMENT, BY COMPANIES: 1907—Continued.

EQUIPMENT OF CARS.													NUMBER OF—			Miles of tele- phone line ex- clusively for oper- ation of road.	Number.			
Motor equipments for motor cars.					With fend- ers.	With brakes.			Heated.			Lighted.			Car houses.			Lamps for lighting of- fices, power houses, shops, car houses, ways, etc.		
Total.	One mo- tor.	Two mo- tor.	Three mo- tor.	Four mo- tor.		Hand.	Air.	Other me- chan- ical.	Total.	Elec- tric.	Stoves, etc.	Total.	Elec- tric.	Oil, gas, etc.				Arc.	Incandes- cent.	Other (Nernst, vacuum, vapor).
22 4 5		16 4 5		6	20 5	22 11 8	6		19 1 5	13 1	6 5	25 8 8	25 8 8	1 1 1	4	300 75		13 5 20		
81		73		8	74	102	9					101	86	15	7	23	838	7		
49		41			49	53	1					53	52	1	2	20	264			
49		41			49	53	1					53	52	1	2	41	264	1		
22		24		8	25	49	8					48	34	14	5	13	386	7		
6 26		6 18		8	25 25	14 8 27						14 8 26	8 8 26	14	1 1 3	4 9	130 415	1 2 8		

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
UNITED STATES		829	2,250	1,832,779	1,262	375,887	447	310,448	342	438,956	209	701,688	262	535,404	41	16,335	228	91,961
ALABAMA.																		
Total for state.....		6	18	12,135	9	3,025	2	1,110	7	9,000			7	12,850				
1	Anniston Electric and Gas.....	1	3	1,000	3	1,000							1	500				
2	Birmingham Railway, Light and Power.....	1	6	6,300	1	500			5	6,000			2	8,000				
3	Alabama City, Gadsden and Attalla.....	1											2	1,500				
4	Huntsville Railway, Light and Power.....	1	3	910	2	400	1	510										
5	Mobile Light and Railroad.....	1	4	3,975	1	375	1	600	2	3,000								
6	Montgomery Traction.....																	
7	North Alabama Traction.....																	
8	Selma Street and Suburban.....																	
9	Sheffield Co.....	1	2	750	2	750							2	2,850				
10	Birmingham and Gulf Rail- way and Navigation. ²																	
ARIZONA.																		
Total for territory.....		1																
1	Douglas Street Railway.....																	
2	Phoenix Railway.....																	
3	Prescott and Mt. Union.....																	
4	Tucson Rapid Transit.....	1	(*)	(*)														
ARKANSAS.																		
Total for state.....		6	21	8,405	18	4,805	1	900	2	2,700			2	2,100				
1	Citizens Electric.....	1	3	525	3	525												
2	Fort Smith Light and Traction.....	1	6	1,880	6	1,880												
3	Hot Springs Street Railway.....																	
4	Little Rock Railway and Electric.....	1	4	4,100	1	500	1	900	2	2,700			2	2,100				
5	Citizens Light and Transit.....	1	5	1,200	3	1,300												
6	Sulphur Rock Railway.....																	
7	Texarkana Gas and Electric.....	1	1	375	1	375												
8	Walnut Ridge and Hoxie.....	1	2	225	2	225												
CALIFORNIA.																		
Total for state.....		19	46	53,595	21	5,695	3	2,450	11	14,050	11	31,400	4	6,700	2	160	2	300
1	Santa Catalina Island Co. ³																	
2	Power, Transit and Light.....																	
3	Northern Electric.....																	
4	Coronado Railroad.....																	
5	Humboldt Transit.....	1	2	650	2	650												
6	Fresno Traction.....																	
7	Nevada County Traction.....																	
8	Los Angeles Electric Incline.....																	
9	Observation Tower Co. ³																	
10	Los Angeles Railway.....	1	5	4,050	2	750	1	800	2	2,500								
11	Pacific Electric.....	2	11	18,195	3	1,345	1	900	2	2,950	5	13,000						
12	Los Angeles Pacific.....	2	7	6,300	3	300			2	2,000	2	4,000	1	2,700				
13	Los Angeles Interurban.....	1																
14	Monterey and Pacific Grove.....																	
15	Vallejo, Benicia and Napa Valley.....																	
16	Oakland Traction.....																	
17	San Francisco, Oakland and San Jose.....	1	4	8,550			1	750	1	1,800	2	6,000						
18	Ontario and San Antonio Heights.....	1															2	300
19	Santa Clara Interurban.....																	
20	El Paso de Robles Street.....																	
21	Petaluma and Santa Rosa.....																	
22	Los Angeles and Redondo.....																	
23	East Shore and Suburban.....	1																
24	Riverside and Arlington.....																	
25	Sacramento Electric, Gas and Railway.....																	
26	San Bernardino Valley Traction.....																	
27	San Diego Electric.....	1	3	500	3	500							3	2,000				

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Includes 46 engines of 243,000 H. P. in the class 1,000 H. P. and over.⁴ Includes 18 dynamos of 90,500 K. W. capacity in the class 5,000 K. W. and over.⁵ Exclusive of current purchased from stations not operated by electric railways, but includes 43 companies for part of year.⁶ Exclusive of current purchased from stations not operated by electric railways.⁷ Current purchased.

OUTPUT OF STATIONS, BY COMPANIES: 1907.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ²		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.	Total for year.	Average per day.						
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.										
857	43,344	2,192	941,502	1,779	403,242	201	152,210	156	207,300	456	478,550	932	781,914	See p. 527	See p. 534	4,759,130,100	13,134,806				
5	230	13	7,200	8	1,900	3	2,500	2	2,800			14	11,700	See p. 527	See p. 534	44,108,069	131,803				
		1	225	1	225							5	1,000	See p. 527		3,265,060	8,945	Yes...	1		
		5	3,700	2	400	2	1,700	1	1,600			4	9,000	See p. 527	See p. 534	38,300,000	100,000	Yes...	2		
												2	1,000	See p. 527		2,190,000	6,000	Yes...	3		
		2	300	2	300							2	450			564,020	1,545	Yes...	4		
		4	2,650	2	650	1	800	1	1,200					See p. 527		3,068,500	10,873	No...	5		
																		No...	6		
																		No...	7		
5	230	1	325	1	325							1	250	See p. 527		1,620,500	4,440	Yes...	8		
																		No...	9		
		2	124	2	124											219,040	600	No...	10		
																		No...	1		
		2	124	2	124											219,040	600	No...	2		
																		No...	3		
																		No...	4		
4	36	14	3,115	12	1,465	1	650	1	1,000			12	4,219	See p. 527	See p. 534	16,347,733	44,789				
		4	315	4	315							1	150			1,364,418	3,821	Yes...	1		
		3	500	3	500							3	899	See p. 527	See p. 534	3,097,000	10,129	Yes...	2		
4	36	2	1,050			1	650	1	1,000			3	2,450	See p. 527	See p. 534	9,028,383	26,379	No...	3		
		2	300	2	300							4	650			1,074,457	2,943	Yes...	4		
		1	250	1	250											428,475	1,174	No...	5		
		2	100	2	100							1	80			125,000	343	Yes...	6		
																		No...	7		
W	600	53	18,900	46	11,650	4	3,050	3	4,250			21	25,450	See p. 527	See p. 534	111,670,840	315,221				
																		No...	1		
																		No...	2		
																		No...	3		
		3	300	3	300									See p. 527	See p. 534	800,880	2,219	No...	4		
																		No...	5		
																		No...	6		
																		No...	7		
		8	3,280	6	1,000	2	1,600							See p. 527	See p. 534	1,494,000	12,450	No...	8		
		6	2,050	5	1,000			1	1,030			5	7,500	See p. 527	See p. 534	53,040,155	145,315	Yes...	9		
2	240	5	1,150	5	1,150							6	9,300	See p. 527	See p. 534	4,512,800	12,303	No...	10		
		1	300	1	300							1	800	See p. 527	See p. 534	(¹)		No...	11		
														See p. 527	See p. 534			No...	12		
																		No...	13		
																		No...	14		
																		No...	15		
		4	4,650			2	1,450	2	3,200					See p. 527		8,902,600	24,300	No...	16		
		1	65	1	65											173,375	475	No...	17		
														See p. 527	See p. 534			No...	18		
																		No...	19		
																		No...	20		
																		No...	21		
		2	500	2	500									See p. 527	See p. 534	(¹)		No...	22		
														See p. 527	See p. 534			No...	23		
														See p. 527	See p. 534			No...	24		
														See p. 527	See p. 534			No...	25		
		9	2,130	9	2,130							2	1,000	See p. 527		2,190,264	6,000	Yes...	26		
																			27		

¹ Steam power.² Power rented.³ Annual power.⁴ Exclusive of current purchased from stations not operated by electric railways, but includes 2 companies for part of year.⁵ For four months only; current purchased for remainder of year.⁶ Current also purchased.⁷ Electrical-generator equipment owned, but operated by Pacific Electric Railway.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
CALIFORNIA—Continued.																		
28	South Park and East Side.....																	
29	Geary Street, Park and Ocean ⁴	1	2	500	2	500												
30	California Street Cable ⁴	1	3	750	3	750												
31	Presidio and Ferries ⁵																	
32	United Railroads of San Fran- cisco.	3	7	13,700	1	500			4	4,800	2	8,400						
33	San Jose Railway ⁵																	
34	San Jose and Santa Clara County.	1												2	100			
35	San Jose-Los Gatos Interur- ban. ⁶																	
36	Santa Barbara Consolidated ⁷ ..		1	250	1	250												
37	Union Traction ⁸																	
38	South San Francisco Railroad and Power. ⁹																	
39	Stockton Electric ¹⁰																	
40	Central California Traction.....	1																
41	Pacific Railroad and Steam- ship.	1	1	150	1	150												
COLORADO.																		
Total for state.....		8	22	17,100	8	2,110	7	4,900	5	6,000	2	4,180	1	2,750			5	1,880
1	Boulder Electric Light and Power.	1	4	385	4													
2	Colorado Springs and Inter- urban.	1	4	2,700	1	450	3	2,250										
3	Colorado Springs and Cripple Creek.	2	1	375	1	375										1	280	
4	Denver City Tramway.....	2	8	9,550			3	1,800	3	3,600	2	4,150	1	2,750				
5	Denver and Inter-Mountain ¹¹ ...																	
6	Denver and Northwestern ¹² ...																	
7	Durango Railway and Realty ¹³																	
8	Denver and South Platte ¹⁴ ...																	
9	Manitou Electric Railway and Casino. ¹⁵																	
10	Pueblo and Suburban Traction and Lighting.	2	5	4,150	2	900	1	850	2	2,400						4	1,600	
11	Trinidad Electric ¹⁶																	
CONNECTICUT.																		
Total for state.....		36	74	42,950	45	13,150	14	9,700	15	20,100							3	1,935
1	Bristol and Plainville Tram- way. ¹⁷																	
2	Danbury and Bethel Street Railway.	1	3	1,275	3	1,275												
3	Hartford and Springfield Street Railway.	1	3	2,000	2	1,000			1	1,000								
4	Groton and Stonington Street Railway.	1	2	550	2													
5	Farmington Street Railway ¹⁸																	
6	New York, New Haven and Hartford Railroad.	32	65	37,625	38	10,325	11	8,200	14	19,100							3	1,935
7	New London and East Lyme Street Railway. ¹⁹																	
8	Norwich and Westerly Rail- way.	1	3	1,500			3	1,500										
9	New York, New Haven and Hartford Railroad (New Can- aan branch). ²⁰																	
DELAWARE.																		
Total for state.....		4	14	6,950	8	1,550	4	2,700	2	2,700								
1	Odessa and Middletown Rail- way.	1	1	125	1	125												
2	Peoples Railway.....	1	6	2,700	2	900	3	1,800										
3	Wilmington City Railway.....	1	2	3,600			1	900	2	2,700								
4	Wilmington, New Castle and Southern Railway.	1	4	525	4	525												
DISTRICT OF COLUMBIA.																		
Total for district.....		3	11	7,525	3	750	7	5,500	1	1,275			2	4,500				
1	Anacostia and Potomac River ²¹																	
2	Brightwood Railway ²²																	
3	Georgetown and Tenallytown ²³																	
4	Capital Traction.....	2	8	4,750	3	750	5	4,000					2	4,500				
5	Washington Railway and Electric.	1	3	2,775			2	1,500	1	1,275								
6	City and Suburban of Wash- ington. ²⁴																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current purchased.⁴ Cable road.⁵ Current also purchased.⁶ Power plant and generating equipment owned, but operated by another company.⁷ For one month only.

GENERAL TABLES.

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OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.			DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.	Total for year.			Average per day.			
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.									
1	25	1	100	1	100											(²)		No.	28	
3	20																	No.	29	
3	375	8	3,200	8	3,200							4	4,800	See p. 527	See p. 534	* 40,700,000	111,500	No.	30	
														See p. 527	See p. 534			No.	31	
		2	175	2	175									See p. 527	See p. 534	* 38,785	109	No.	32	
														See p. 527	See p. 534			No.	33	
		2	720	2	720									See p. 527	See p. 534	(³)		No.	34	
														See p. 527	See p. 534			No.	35	
																		No.	36	
		1	100	1	100							3	2,650	See p. 527		(⁴)	8,000	No.	37	
																		No.	38	
		17	8,075	11	2,780	5	3,725	1	1,600			8	5,550	See p. 527	See p. 534	* 42,110,616	115,372		39	
		3	100	3	100							2	124		See p. 534	* 980,200	2,695	Yes	40	
		4	1,825	3	1,300	1	525									4,654,000	12,477	Yes	41	
		1	225	1	225							1	225	See p. 527	See p. 534	* 1,898,000	5,200	No	42	
		7	4,900	3	900	3	2,400	1	1,600			2	3,500	See p. 527	See p. 534	26,419,570	72,282	Yes	43	
																		No	44	
																		No	45	
																		No	46	
																		No	47	
																		No	48	
		3	1,025	1	225	1	800					3	1,710	See p. 527	See p. 534	8,228,696	22,627	Yes	49	
																		No	50	
4	220	78	28,065	61	14,240	12	8,625	5	4,200			12	2,730	See p. 527	See p. 534	* 77,897,041	214,674		51	
																		No	52	
		5	800	5	800											737,153	1,902	Yes	53	
		3	1,100	3	1,100									See p. 527		2,695,600	7,400	Yes	54	
		2	650	2	650											1,130,000	3,100	No	55	
3	145	67	25,465	50	11,640	12	8,625	5	5,200			9	1,530	See p. 527	See p. 534	* 72,555,788	198,782	No	56	
														See p. 527	See p. 534			No	57	
1	75	1	50	1	50							3	1,200	See p. 527	See p. 534	* 787,800	3,400	No	58	
																		No	59	
																		No	60	
1	75	14	5,267	11	2,987	2	1,400	1	1,000					See p. 527		* 7,624,714	21,073		61	
		1	75	1	75											11 55,419	155	No	62	
		6	2,079	6	2,079									See p. 527		2,508,975	7,115	Yes	63	
1	75	2	2,700	2	300	1	1,400	1	1,000							4,205,100	11,521	Yes	64	
			533	2	533											667,220	1,828	No	65	
11	235	14	5,015	8	1,540	6	3,475					2	3,000	See p. 527	See p. 534	* 40,176,898	110,073		66	
																		No	67	
																		No	68	
11	235	11	3,165	6	540	5	2,625					3	3,000	See p. 527	See p. 534	12,026,980	33,414	No	69	
		11	1,830	2	1,000	1	830					(12)	(13)	See p. 527	See p. 534	27,167,892	74,432	Yes	70	
															See p. 534			No	71	

¹ Exclusive of current purchased from stations not operated by electric railways.² Exclusive of current purchased from stations not operated by electric railways, but includes 1 company for part of year.³ For seven and one-half months only.⁴ For three months only.⁵ Electrical-generating equipment largely owned and operated by Potomac Electric Power Company (a central electric light and power station).

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
FLORIDA.																		
	Total for state.....	7	21	6,760	20	6,000	1	700					2	1,906	5	825	8	1,400
1	Amelia Beach Co. ¹																	
2	Fort Meade Street Railway ²																	
3	Jacksonville Electric.....	1	4	1,250	4	1,250												
4	North Jacksonville Street Railway, Town and Im- provement. ³																	
5	Key West Electric.....	1	2	400	2	400									5	825		
6	Pensacola Electric.....	1	6	1,410	5	710	1	700					1	408				
7	St. Johns Light and Power.....	1	3	1,070	3	1,070												
8	St. Petersburg and Gulf ⁴																	
9	Tampa and sulphur springs Traction.....	1	2	800	2	800												
10	Tampa Electric.....	2	4	1,830	4	1,830							1	1,500			8	1,400
GEORGIA.																		
	Total for state.....	11	20	18,045	8	3,445	6	4,750	4	5,100	2	4,750	7	11,070	1	3,000	13	5,797
1	Athens Electric Railway.....	3											1	670			5	2,067
2	Georgia Railway and Electric.....	2	9	12,150			4	3,400	3	4,000	2	4,750	2	6,000	1	3,000		
3	Atlanta Northern Railway ⁵																6	2,530
4	Augusta Railway and Electric.....	2	4	2,000	4	2,000												
5	Columbus Railroad ⁶																	
6	Covington and Oxford ⁷																	
7	Guineville Electric Railway.....	1															2	1,300
8	Macon Railway and Light.....	1	1	750			1	750										
9	Rome Railway and Light.....	1											2	2,250				
10	Savannah Electric.....	1	6	3,145	4	1,445	1	600	1	1,100			1	1,400				
11	Valdosta Street Railway ⁸													750				
12	Washington Street Railway ⁹																	
IDAHO.																		
	Total for state.....																	
1	Boise Railroad ¹⁰																	
2	Boise and Intermountain Rail- way. ¹¹																	
ILLINOIS.																		
	Total for state.....	44	170	183,235	65	20,790	31	22,030	43	55,857	31	64,566	7	11,396			6	1,153
1	Alton, Granite and St. Louis ¹²																	
2	Alton, Jacksonville and Pe- oria. ¹³																	
3	Fruit Growers Refrigerating and Power.....	1	2	500	2	500												
4	Aurora, DeKalb and Rock- ford. ¹⁴																	
5	Belvidere City Railway ¹⁵																	
6	Bloomington and Normal.....	1	6	3,150	3	1,350	3	1,800										
7	Peoria, Bloomington and Champaign.....	1											1	2,668				
8	Cairo Electric and Traction.....	1	4	820	4	820												
9	Illinois Central Electric Rail- way. ¹⁶																	
10	Centralia and Central City ¹⁷																	
11	Urbana and Champaign.....	1	4	3,000	3	1,000			2	2,000								
12	St. Louis, Decatur and Cham- paign. ¹⁸		1	1,000					1	1,000								
13	Danville, Urbana and Cham- paign. ¹⁹		2	2,000					2	2,000								
14	Chicago City Railway.....	3	19	17,600			12	8,800	7	8,800								
15	Chicago Union Traction.....	2	10	22,500					3	4,500	7	18,000						
16	Chicago Consolidated Traction.....	3	14	18,000	1	300	1	700	12	17,000								
17	Calumet Electric Street Rail- way.....	1	6	2,850	4	1,300	2	1,550										
18	Chicago Electric Traction.....	1	4	1,180	4	1,180												
19	Southern Street Railway.....	1	2	1,000	2	1,000												
20	General Electric Railway ²⁰																	
21	Suburban Railroad.....	1	2	750	2	750												
22	Northwestern Elevated Rail- road.....	2	8	17,700					1	1,000	7	16,700						
23	South Side Elevated Railroad.....	1	9	22,300					4	5,000	5	17,500						
24	Metropolitan West Side Ele- vated. ²¹	1	7	16,750					2	2,632	5	14,118						
25	South Chicago City Railway.....	1	4	1,600	3	900	1	700										
26	Chicago and Oak Park Ele- vated Railroad. ²²																	
27	Chicago and Milwaukee.....	1	3	4,015			1	640	1	1,125	1	2,250	1	1,350				
28	Chicago and Joliet ²³																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Exclusive of current purchased from stations not operated by electric railways, but includes 1 company for part of year.⁴ Current purchased.⁵ Animal power.⁶ For twelve months, as lighting department was operated entire year.⁷ For seven and one-half months only.⁸ Exclusive of current purchased from stations not operated by electric railways.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.								ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for mls.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
1	20	19	3,768	19	3,708							21	4,688	See p. 527	See p. 534	* 15,721,733	43,636		
		7	1,083	7	1,063							2	300			3,441,683	9,429	No.	1
																		No.	2
																		No.	3
																		No.	4
1	20	2	295	2	295							6	798	See p. 527		1,138,187	3,118	Yes	5
		4	800	4	800							5	700	See p. 527		2,329,260	6,360	Yes	6
		2	265	2	265							3	600	See p. 527		* 370,023	1,013	Yes	7
																		No.	8
		2	600	2	600											1,308,000	1,400	No.	9
		2	725	2	725							5	2,200	See p. 527	See p. 534	8,134,560	22,286	Yes	10
24	764	37	9,792	31	4,267	4	2,525	2	3,000			25	15,300	See p. 527	See p. 534	* 35,325,815	96,689		
2	40	1	150	1	150							6	2,050	See p. 527	See p. 534	3,245,000	9,000	Yes	1
10	424	6	5,060	2	1,000	2	1,000	2	3,000			6	8,000	See p. 527	See p. 534	* 11,995,907	32,801	Yes	2
		7	1,575	6	900	1	675					3	1,050	See p. 527		5,470,856	14,986	No.	3
																		No.	4
		1	500	1	500							2	900	See p. 527	See p. 534	358,945	1,000	No.	5
												3	500	See p. 534	See p. 534	4,907,570	13,418	Yes	6
12	300	22	2,517	21	1,717	1	800					2	1,000	See p. 527	See p. 534	1,509,300	4,300	Yes	7
												3	1,100	See p. 527	See p. 534	7,848,077	21,501	Yes	8
																		No.	9
															See p. 534			No.	10
															See p. 534			No.	11
																		No.	12
64	2,462	158	94,129	100	25,899	25	19,530	30	42,450	3	6,250	49	30,090	See p. 528	See p. 534	* 475,924,096	1,332,773		
															See p. 534			No.	1
		1	225	1	225							1	75			* 167,900	400	Yes	3
																		No.	4
		4	5,000					4	5,600			2	1,400	See p. 528		4,800,490	13,340	No.	5
1	100	1	75	1	75							1	2,000	See p. 528	See p. 534	* 5,800,000	25,000	Yes	6
		4	400	4	400							4	480	See p. 528		1,780,033	4,901	Yes	7
																		No.	8
		2	1,000	2	1,000							2	600	See p. 528	See p. 534	5,304,000	14,531	No.	9
		1	500	1	500										See p. 534	(^c)		Yes	10
		2	1,000	2	1,000									See p. 528	See p. 534	(^c)		No.	11
		10	12,780	10	5,000	8	6,580	1	1,200					See p. 528	See p. 534	* 113,588,401	311,201	Yes	12
5	115	13	14,059	3	1,300	3	2,400	7	10,350					See p. 528	See p. 534	* 80,545,787	220,673	Yes	13
3	70	17	10,810	8	3,040	5	3,730	4	4,000					See p. 528	See p. 534	45,821,516	125,538	Yes	14
1	150	6	2,100	4	1,000	2	1,100							See p. 528	See p. 534	6,395,796	18,000	No.	15
		6	705	6	705											* 1,747,000	9,400	No.	16
		2	700	2	700									See p. 528		* 5,110,000	14,000	No.	17
																(^c)		No.	18
2	50	5	563	2	563									See p. 528	See p. 534	* 16,425,000	45,000	No.	19
			7,800			1	900	4	6,900					See p. 528	See p. 534			No.	20
		9	11,799			4	3,200	3	4,500	2	4,000			See p. 528		45,782,260	125,431	No.	21
27	540	7	10,150			2	1,600	4	6,300	1	2,250			See p. 528	See p. 534	* 10,142,257	27,444	No.	22
		3	1,100	3	1,100							1	300	See p. 528	See p. 534	4,411,283	12,085	Yes	23
																		No.	24
7	175	2	825	2	825							4	3,290	See p. 528	See p. 534	13,121,004	36,940	Yes	25
														See p. 528	See p. 534			No.	26

^a Current also purchased.^b Exclusive of current purchased from stations not operated by electric railways, but includes 6 companies for part of year.^c Estimated.^d Gasoline motors.^e For seven and one-half months only; current purchased for remainder of year.^f Power plant and generating equipment owned, but operated by another company.^g For six months only; current purchased for remainder of year.^h Storage battery.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
ILLINOIS—Continued.																		
29	Danville Street Railway and Light.	1	10	8,350	7	2,000	1	750	1	1,300	1	3,300						
30	Decatur Railway and Light.	1	4	2,750	3	1,150			1	1,000								
31	Illinois Central Traction.	1	1	1,500					1	1,500								
32	Chicago, Bloomington and Decatur. ¹																	
33	DeKalb-Sycamore and Inter- urban. ²																	
34	Sterling, Dixon and Eastern. ³																	
35	St. Louis and Belleville. ⁴																	
36	East St. Louis and Suburban.	1	5	7,300					4	4,700	1	2,500	3	3,080				
37	Elgin and Belvidere. ⁵																	
38	Freeport Railway, Light and Power.	1	2	1,100	1	200	1	900									4	600
39	Galesburg Railway and Light.	1	2	1,600			2	1,500										
40	Peoples Traction.	1	1	600	1	600												
41	Citizens Railway. ⁶																	
42	Keokuk and Western Illinois. ⁷																	
43	Chicago, Harvard and Geneva Lake.	1	3	900	3	900												
44	Chicago and Southern Traction	1	1	300	1	300												
45	Sangamon Valley Railway. ⁸																	
46	St. Louis and North Eastern. ⁹		1	600			1	600					1	2,800				
47	Jacksonville Railway and Light.	1	3	870	3	870												
48	Joliet, Plainfield and Aurora. ¹⁰																	
49	Kankakee Electric Railway.	1	2	250	2	250												
50	North Kankakee Electric Light and Railway. ¹¹																	
51	Galesburg and Kewanee.	1	2	950	2	950												
52	Illinois Valley Railway.	1	2	2,250			1	750	1	1,500								
53	Lincoln Railway and Light.	1	1	150	1	150												
54	Coal Belt Electric Railway.	1	2	600	2	600												
55	Mattoon City Railway. ¹²																	
56	Moline, East Moline and Wa- tertown. ¹³																	
57	Rock Island Southern Railroad	1	2	1,200			2	1,200										
58	Murphysboro Street Railway. ¹⁴																	
59	Northern Illinois Light and Traction.	1	2	1,000	2	1,000											2	553
60	Paris Traction. ¹⁵																	
61	Peoria Railway.		(²)	(²)														
62	Peoria Railway Terminal.	1	2	500	2	500												
63	Bloomington, Pontiac and Joliet.		1	500	1	500												
64	Quincy Horse Railway.	1	2	1,200	1	400	1	800										
65	Rockford and Interurban. ¹⁶		2	1,340			2	1,340										
66	Springfield Consolidated. ¹⁷																	
67	St. Louis and Springfield. ¹⁸												1	1,500				
68	Springfield and North Eastern. ¹⁹																	
69	Illinois Light and Traction.	1	6	810	6	810												
70	Aurora, El. L. and Chicago.	1	4	10,000							4	10,000						
INDIANA.																		
Total for state.		37	77	53,907	33	11,820	29	21,987	15	20,100			15	24,770				
1	Indiana Union Traction.	3	9	10,300	2	1,000	2	1,800	5	7,500								
2	Angola Railway and Power.	1	2	650	2	650												
3	Marion, Bluffton and Eastern. ²⁰																	
4	Brownstown and Ewing. ²¹																	
5	Central Indiana Lighting.	1	1	135	1	135												
6	Indianapolis, Columbus and Southern.	1	2	1,400			2	1,400										
7	Fort Wayne and Springfield.	1	1	675			1	675										
8	Evansville and Southern In- diana.	2	5	3,725			5	3,725										
9	Evansville Railways.	1	2	900	2	900												
10	Evansville Suburban and Newburgh. ²²																	
11	Fort Wayne and Wabash Val- ley.	3	5	3,400	2	1,000	3	2,400					3	5,100				
12	French Lick and West Baden. ²³																	
13	Hammond, Whiting and East Chicago. ²⁴																	
14	Indianapolis Traction and Ter- minal.	1	7	7,587			3	1,687	4	5,900			2	4,000				
15	Terre Haute, Indianapolis and Eastern.	6	15	11,300	7	3,050	2	1,550	6	6,700			4	7,670				
16	Indianapolis and Cincinnati.	1	2	1,500			2	1,500					2	3,000				
17	Indianapolis, Crawfordsville and Western.	1	2	1,800			2	1,800										

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current purchased.⁴ For seven and one-half months only; current purchased for remainder of year.⁵ Power plant and generating equipment owned, but operated by another company.⁶ For eight months only.⁷ Animal power.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ²		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
		8	998	11	905							4	3,300	See p. 528		8,487,124	23,115	Yes...	29
1	100	4	700	4	700							3	1,800	See p. 528	See p. 535	2,729,470	7,478	Yes...	30
		1	75	1	75							1	1,000	See p. 528	See p. 535	12,000,000	22,877	No...	31
																		No...	32
														See p. 528	See p. 535			No...	33
7	520	3	3,600					3	3,600			2	1,500	See p. 528	See p. 535	30,529,317	83,642	No...	34
4	70	2	300	2	300							2	520	See p. 528	See p. 535	1,825,000	5,000	Yes...	35
		2	600	2	600							2	1,000	See p. 528		2,854,190	7,820	Yes...	36
1	4	1	300	1	300							1	200	See p. 528	See p. 535	446,880	1,224	No...	37
																		No...	38
		3	675	3	675							1	100			408,435	1,119	No...	39
		1	100	1	100										See p. 535	454,000	2,000	Yes...	40
												2	2,400	See p. 528	See p. 535	(¹)		No...	41
		3	450	3	450							2	430	See p. 528		1,153,593	3,161	No...	42
																		No...	43
		2	412	2	412									See p. 528		271,925	745	Yes...	44
1	8	2	600	2	600													No...	45
		1	500	1	500							1	1,000	See p. 528	See p. 535	540,000	1,479	Yes...	46
		1	94	1	94											4,000,675	11,225	No...	47
		2	385	2	385									See p. 528	See p. 535	184,800	770	No...	48
																975,000	2,671	No...	49
																		No...	50
		2	800	2	800											584,000	1,600	Yes...	51
		1	125	1	125							2	500	See p. 528		1,820,720	4,998	No...	52
		(¹)	(¹)															No...	53
		2	425	2	425							1	300			2,500,000	16,000	Yes...	54
																622,096	1,704	No...	55
		6	735	6	735											(¹)		No...	56
2	60											2	1,000	See p. 528	See p. 535	1,406,479	3,851	No...	57
		1	75	1	75							1	1,000	See p. 528	See p. 535	1,173,935	7,820	Yes...	58
																(¹)		No...	59
		4	400	4	400							3	375			1,550,000	4,225	No...	60
2	500											4	6,000	See p. 528	See p. 535	26,440,000	80,000	Yes...	61
34	1,462	54	16,800	48	11,200	2	1,200	4	4,200			55	38,400	See p. 528	See p. 535	114,531,744	402,342		62
5	185											9	7,000	See p. 528	See p. 535			Yes...	63
		1	100	1	100							2	110	See p. 528	See p. 535	35,130,582	95,985	Yes...	64
																100,575	275	No...	65
1	40															105,455	289	No...	66
												2	1,100			2,124,320	5,845	No...	67
												1	450	See p. 528		180,000	493	No...	68
4	83	3	1,600	1	400	2	1,200					2	800	See p. 528	See p. 535	4,475,675	12,362	Yes...	69
																		No...	70
		2	660	2	660											114,420	1,272	No...	71
																		No...	72
		10	1,470	10	1,470							6	4,820	See p. 528	See p. 535	10,984,308	55,000	Yes...	73
																		No...	74
															See p. 535			No...	75
2	230	7	5,575	3	1,375			4	4,200			2	3,000	See p. 528	See p. 535	28,937,970	79,337	Yes...	76
12	444	4	1,200	4	1,200							14	10,800	See p. 528	See p. 535	10,290,000	27,111	Yes...	77
1	75											4	3,000	See p. 528	See p. 535	7,112,980	19,487	No...	78
												2	1,400	See p. 528	See p. 535	1781,560	4,842	No...	79

¹ Not reported; power plant discontinued in May.² For five months only; current purchased for remainder of year.³ Lensed and operated an electric-light plant for five months. The plant was operated independently remainder of year.⁴ Exclusive of current purchased from stations not operated by electric railways, but includes 4 companies for part of year.⁵ Current also purchased.⁶ For six months only.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
INDIANA—Continued.																		
18	Toledo and Chicago Interurban	1											2	2,000				
19	Kokomo, Marion and Western	2	1	550			1	550					2	3,000				
20	Chicago-New York Electric Air Line	1	1	425	1	425												
21	Lebanon-Thornton Traction ¹																	
22	Madison Light and Railway	1	3	350	3	350												
23	Louisville and Southern Indiana ²																	
24	Louisville and Northern	1	1	60	1	60												
25	Winona Interurban Railway (Peru division) ³																	
26	Muncie and Portland	1	2	1,000	2	1,000												
27	Indianapolis and Louisville	1	2	1,500			2	1,500										
28	Chicago, South Bend and Northern Indiana	4	8	3,100	7	2,300	1	800										
29	Southern Michigan Railway	1	2	1,300	1	500	1	800										
30	Vincennes Traction and Light	1	2	450	2	450												
31	Washington Street Railway ⁴																	
32	Winona Interurban Railway ⁵	1	2	1,800			2	1,800										
33	Winona and Warsaw ⁶																	
IOWA.																		
Total for state		18	54	23,700	38	8,300	11	8,000	4	4,900	1	2,500	9	7,900				
1	Albia Interurban ⁷																	
2	Boone Electric	1	3	500	3	500												
3	Fort Dodge, Des Moines and Southern	1	2	100	2	100							2	3,200				
4	Boone Suburban ⁸																	
5	Peoples Gas and Electric	1	3	2,000			2	1,000	1	1,000								
6	Cedar Rapids and Marion City	1	2	1,450	1	500	1	950										
7	Cedar Rapids and Iowa City	1	4	2,650	1	250	2	1,200	1	1,200								
8	Centerville Light and Traction	1	2	300	2	300												
9	Clinton Street Railway ⁹																	
10	Iowa and Illinois Railway	1											2	1,200				
11	Tri-City Railway	1	7	1,040	7	1,040												
12	Des Moines City Railway	1	5	3,675	3	975			2	2,700								
13	Interurban Railway ¹⁰																	
14	Union Electric	1											5	3,500				
15	Fort Madison Street Railway ¹¹																	
16	Keokuk Electric Railway and Power	1	3	1,000	3	1,000												
17	Marshalltown Light, Power and Railway	1	5	1,150	4	550	1	600										
18	Mason City and Clear Lake	1	2	600	2	600												
19	Citizens Railway and Light ¹²																	
20	Oskaloosa Traction and Light	1	3	1,375	2	675	1	700										
21	Ottumwa Railway and Light	1	5	2,300	3	600	2	1,600										
22	Sioux City Traction	1	3	3,850			2	1,350			1	2,500						
23	Tama and Toledo	1	2	310	3	310												
24	Waterloo, Cedar Falls and Northern	1	2	900	2	900												
KANSAS.																		
Total for state		9	16	6,960	11	3,660	5	3,200							3	1,125		
1	Arkansas City Street Railway ¹³																	
2	Atchison Railway, Light and Power	1	3	1,100	3	1,100												
3	Fort Scott Gas and Electric	1	1	300	1	300												
4	Girard Coal Belt Railway	1	1	450	1	450												
5	Hutchinson Interurban ¹⁴																	
6	Union Traction	1																
7	Iola Electric Railroad	1	2	600	2	600												
8	Electric Railway, Light and Ice	1	3	1,450	1	250	2	1,200										
9	Kansas City-Western Railway ¹⁵																	
10	Joplin and Pittsburg	2	3	1,200	2	600	1	600										
11	Missouri and Kansas Interurban ¹⁶																	
12	Kansas City and Olathe ¹⁷																	
13	Salina Street and Interurban ¹⁸																	
14	Consolidated Street Railway ¹⁹																	
15	Tupoka Railway ²⁰																	
16	Wichita Railroad and Light	1	3	1,700	1	300	2	1,400										
17	Union Street Railway ²¹																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ For eleven months only.⁴ For six and one-half months only.⁵ Current purchased.⁶ Current also purchased.⁷ For two and one-half months only.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ²		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.	
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.			
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.									
2	50											I	1,000	See p. 528	See p. 535	1,277,500	3,813	Yes...	18	
4	150	1	200	1	200							3	2,320	See p. 528	See p. 535	2,283,023 +215,318	8,985 1,062	Yes...	19	
		3	210	3	210							2	170			542,755	1,467	No...	21	
		1	40	1	40									See p. 528	See p. 535	*30,850	100	Yes...	24	
																		No...	25	
2	60	4	1,200	4	1,200							II	600	See p. 528	See p. 535	1,060,150 +310,800 +4,603,380	4,573 4,200 12,612	No...	26	
		13	2,870	13	2,870													No...	27	
		2	800	2	800										See p. 528		*1,800,000	4,110	No...	28
		2	600	2	600												219,000	600	Yes...	29
1	125											2	1,200	See p. 528	See p. 535	1,463,448	4,030	No...	31	
																		Yes...	32	
22	750	57	15,082	50	7,882	2	1,600	5	5,600			29	8,940	See p. 528	See p. 535	*42,250,655	122,026		33	
		4	356	4	356							2	120	See p. 528	See p. 535	730,000 +1,363,870	2,000 6,653	No...	1	
		2	2,400					2	2,400									Yes...	2	
		5	1,350	5	1,350							3	975			1,353,055	3,707	No...	4	
		2	750	2	750											1,247,050	3,417	Yes...	5	
2	130	1	200	1	200							3	1,600	See p. 528	See p. 535	5,000,400 440,920	15,524 1,208	Yes...	6	
		3	294	3	294													Yes...	7	
												2	800	See p. 528	See p. 535	1,628,489	5,013	No...	8	
		7	950	7	950									See p. 528	See p. 535	*1,180,745	6,509	Yes...	9	
4	20	11	3,545	13	1,545			2	2,000					See p. 528	See p. 535	12,175,800	36,099	No...	10	
												5	2,500	See p. 528	See p. 535	4,500,000	12,330	Yes...	11	
5	100											3	575			1,200,000	3,290	No...	12	
		1	220	1	220							1	320			1,406,300	4,100	Yes...	13	
		2	400	2	400											503,000	1,378	No...	14	
		3	400	3	400							3	700	See p. 528		1,054,073	2,899	Yes...	15	
		3	800	3	800							3	900	See p. 528		2,197,320	6,020	Yes...	16	
7	300	2	2,800			2	1,600	1	1,200					See p. 528		3,184,883	8,726	Yes...	17	
		3	142	2	142							3	250	See p. 528		182,500	500	Yes...	18	
		1	150	1	150							1	200	See p. 528	See p. 535	935,900	2,564	No...	19	
		17	3,625	17	3,625							10	2,010	See p. 528	See p. 535	*8,065,038	24,673		20	
		3	500	3	500							4	430			734,002	2,011	No...	1	
		2	200	2	200											153,300	420	No...	2	
		1	200	1	200											*17,760	480	No...	3	
												2	700	See p. 528	See p. 535	1,787,500	4,194	No...	4	
		2	400	2	400							3	700	See p. 528		540,000	1,479	No...	5	
		2	275	2	275											1,664,340	4,560	Yes...	6	
														See p. 528	See p. 535			No...	7	
		3	750	3	750											1,740,000	4,767	No...	8	
																		Yes...	9	
																		No...	10	
																		No...	11	
																		No...	12	
																		No...	13	
																		No...	14	
		4	1,300	4	1,300							1	180	See p. 528	See p. 535	2,000,120	6,702	No...	15	
																		Yes...	16	
																		No...	17	

¹ Exclusive of current purchased from stations not operated by electric railways, but includes 2 companies for part of year.

² For six months only; current purchased for remainder of year.

³ Animal power.

⁴ For one month only.

⁵ For six months only.

⁶ Gas-electric motors.

⁷ Gasoline motors.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
KENTUCKY.																		
	Total for state.....	9	31	24,145	15	3,645	10	6,750	1	1,250	5	12,500	2	5,200				
1	Bowling Green Railway ⁴	1	5	5,400			3	1,650	1	1,250	1	2,500						
2	Cincinnati, Newport and Covington.....	1	1	250	1	250												
3	Henderson Traction.....	1	4	2,550	1	450	3	2,100					1	1,200				
4	Blue Grass Traction ⁴																	
5	Central Kentucky Traction.....	1	3	415	3	415												
6	Louisville Railway.....	1	10	13,200	2	200	4	3,000			4	10,000	1	4,000				
7	Louisville and Eastern.....	1	3	1,300	3	1,300												
8	Maysville Street Railroad ⁴																	
9	Owensboro City Railroad.....	1	1	300	1	300												
10	Paducah Traction ⁴																	
11	Somerset Water, Light and Traction.....	1	3	580	3	580												
12	Winchester Railway, Light and Ice.....	1	1	150	1	150												
LOUISIANA.																		
	Total for state.....	8	32	30,630	19	6,630	3	2,500	7	9,300	3	12,400	7	10,375				
1	Alexandria Electric Railways.....	1	2	325	2	325												
2	Baton Rouge Electric and Gas.....	1	2	950	2	950												
3	Lake Charles Street Railway ⁴																	
4	City of Monroe (municipal).....	1	2	655	2	655												
5	St. Charles Street Railroad.....	1	4	1,900	3	900			1	1,000								
6	Orleans Railroad ⁴																	
7	New Orleans Railway and Light.....	1	7	17,150			1	800	3	3,900	3	12,400	7	10,375				
8	New Orleans and Carrollton.....	2	12	8,250	8	3,100	1	750	3	4,400								
9	New Orleans and Pontchartrain.....																	
10	Algiers Railway and Lighting ⁴																	
11	Shreveport Traction.....	1	3	1,600	2	700	1	900										
MAINE.																		
	Total for state.....	20	30	11,845	23	6,520	6	3,750	1	1,575			2	1,500			32	7,000
1	Bangor Railway and Electric.....	1	3	1,850	1	350	2	1,500									15	2,300
2	Biddeford and Saco.....	1	3	575	3	575												
3	Portland and Brunswick.....	1	4	1,230	3	670	1	550										
4	Calais Street Railway.....	1	1	175	1	175												
5	Fairfield and Shawmut ⁴																	
6	Benton and Fairfield.....	1															2	500
7	Fryeburg Horse Railroad ¹⁰																	
8	Lewiston, Augusta and Waterville.....	3	6	1,450	4	1,450												
9	Norway and Paris ⁴																	
10	Portland Railroad.....	3	6	3,775	3	1,100	2	1,100	1	1,575			2	1,500				
11	Rockland, Thomaston and Camden.....	1	4	1,350	3	750	1	600										
12	Rockland, South Thomaston and Owl's Head ⁴																	
13	Atlantic Shore Line.....	4	4	1,050	4	1,050											5	2,800
14	Somerset Traction ⁴																	
15	Auburn and Turner ⁴																	
16	Waterville and Fairfield.....	3	1	400	1	400											7	1,250
17	Waterville and Oakland.....	2															3	150
MARYLAND.																		
	Total for state.....	9	25	58,425	21	7,925	4	3,000			10	47,500	1	7,500				
1	United Railways.....	5	25	54,475	11	3,975	4	3,000			10	47,500	1	7,500				
2	Cumberland Electric Railway.....																	
3	Cumberland and Westernport.....	2	5	1,900	5	1,900												
4	Frederick and Middletown.....	1	2	850	2	850												
5	Hagerstown and Boonsboro ⁴																	
6	Hagerstown and Myersville.....																	
7	Hagerstown and Northern ⁴																	
8	Hagerstown Railway.....	1	3	1,200	3	1,200												
9	Baltimore and Bel Air ⁴																	
10	Kensington Railway ⁴																	
11	Washington, Berwyn and Laurel ⁴																	
12	Washington and Rockville ⁴																	
13	Washington, Woodside and Forest Glen ⁴																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Exclusive of current purchased from stations not operated by electric railways.⁴ Current purchased.⁵ Current also purchased.⁶ Includes 2 engines of 10,000 H. P. in the class 5,000 H. P. and over.

GENERAL TABLES.

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OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.								ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.	
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.			
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.									
2	80	28	11,485	24	5,885	1	800	3	4,800			10	7,565	See p. 528	See p. 535	* 53,425,693	146,353	No	1	
		5	3,425	3	1,125	1	800	1	1,600					See p. 528	See p. 535	10,920,200	29,900	No	2	
1	75	1	150	1	150							4	775	See p. 528		262,800	720	No	3	
		6	1,150	6	1,150									See p. 528		4,745,000	13,000	Yes	4	
		4	350	4	350										See p. 535				No	5
		6	5,300	4	2,000			2	3,300			3	6,300	See p. 528	See p. 535	* 265,000	1,000	No	6	
1	5	2	500	2	500							1	300	See p. 528	See p. 535	33,057,438	90,598	No	7	
		1	200	1	200									See p. 528	See p. 535	1,412,550	3,870	No	8	
		2	310	2	310							2	210	See p. 528		1,460,000	4,000	No	9	
		1	100	1	100											1,062,130	2,910	No	10	
																140,325	385	Yes	11	
46	2,226	39	18,103	31	7,503	3	2,200	3	3,900	2	4,500	9	8,400	See p. 529	See p. 535	* 67,019,038	183,680	No	12	
2	20	2	210	2	210							4	700	See p. 529		180,675	495	Yes	1	
		6	870	6	870											1,400,000	3,900	Yes	2	
		2	223	2	223							1	200	See p. 529		67,432	185	No	3	
11	356	4	1,100	4	1,100											5,110,000	14,000	Yes	4	
13	975	7	8,300	3	1,800	1	800	1	1,500	2	4,500	4	7,600	See p. 529	See p. 535	81,347,247	140,677	No	5	
20	875	13	6,600	9	2,800	2	1,400	2	3,400					See p. 529	See p. 535	* 7,545,814	20,673	Yes	6	
		5	1,100	5	1,100										See p. 535				No	7
														See p. 529		1,366,730	3,750	Yes	8	
		46	7,750	45	6,700			1	1,050			21	5,907	See p. 529	See p. 535	* 29,134,324	81,856	No	9	
		4	630	4	630							4	1,520	See p. 529	See p. 535	6,133,140	16,802	Yes	10	
		3	430	3	430							2	140	See p. 529	See p. 535	* 458,380	1,253	Yes	11	
		2	300	2	300									See p. 529	See p. 535	* 142,000	2,366	Yes	12	
		1	100	1	100											400,600	1,099	Yes	13	
		2	150	2	150							4	1,050	See p. 529	See p. 535	146,000	400	No	14	
		6	1,100	6	1,100											* 6,537,813	17,912	Yes	15	
		6	2,600	5	1,550			1	1,050					See p. 529	See p. 535	* 7,915,700	21,657	No	16	
		10	630	10	680							2	180	See p. 529		1,636,389	4,543	Yes	17	
		4	900	4	900							5	2,100	See p. 529	See p. 535	* 2,016,422	5,524	Yes	18	
		6	730	6	730							4	917	See p. 529	See p. 535	3,380,400	9,261	No	19	
		2	180	2	180									See p. 535	See p. 535	368,500	1,010	No	20	
16	1,065	24	12,055	31	7,655			3	5,400			11	25,420	See p. 529	See p. 535	* 105,582,501	289,267	No	21	
16	1,065	20	10,455	17	5,055			3	5,400			9	25,250	See p. 529	See p. 535	100,065,951	275,797	No	22	
		5	1,250	5	1,250									See p. 529		2,007,500	5,500	Yes	23	
		2	500	2	500											278,465	763	No	24	
															See p. 535				No	25
		7	850	7	850							2	180	See p. 529	See p. 535	2,620,555	7,207	No	26	
															See p. 535				No	27
															See p. 535				No	28
															See p. 535				No	29
															See p. 535				No	30

¹ Exclusive of current purchased from stations not operated by electric railways, but includes 1 company for part of year.² Estimated.³ For two months only; current purchased for remainder of year.⁴ Animal power.⁵ Includes 2 engines of 15,000 H. P. in the class 5,000 H. P. and over.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
MASSACHUSETTS.																		
	Total for state.....	70	204	170,100	128	43,354	21	14,746	39	56,700	16	55,300	10	22,250	5	2,700	15	1,620
1	Amesbury and Hampton ⁴	1	3	1,050	3	1,050												
2	Lexington and Boston.....																	
3	Interstate Consolidated ⁴																	
4	Lowell and Fitchburg ⁴																	
5	Old Colony Street Railway.....	4	8	4,400	4	1,760	4	2,700					8	17,250				
6	Boston and Northern.....	11	37	30,456	21	8,450	5	3,556	9	13,050	2	4,500						
7	Boston Elevated Railway.....	10	44	70,250	17	4,550	1	700	15	23,200	11	41,800	1	2,000	5	2,700		
8	Blue Hill Street Railway.....	1	2	650	2	650												
9	Berkshire Street Railway.....	2	5	4,300	2	800			3	3,400								
10	New York, New Haven and Hartford.....	1	2	1,000			2	1,000										
11	Concord, Maynard and Hudson.....	1	2	700	2	700												
12	Conway Electric Street Railway.....	2	1	100	1	100										2	300	
13	Cottage City and Edgartown.....	1	1	125	1	125												
14	Dedham and Franklin ⁴																	
15	Connecticut Valley Street Railway.....	2	2	700	2	700										4	400	
16	Providence and Fall River ⁴																	
17	Lowell and Belham ⁴																	
18	Dartmouth and Westport ⁴																	
19	Fitchburg and Leominster.....	2	3	1,300	2	700	1	600								3	375	
20	Boston and Worcester.....	1	2	2,400			1	800	1	1,600			1	3,000				
21	Gardner, Westminster and Fitchburg.....	2	2	600	2	600												
22	Haverhill and Southern New Hampshire ⁴																	
23	Haverhill and Plakow ⁴																	
24	Haverhill and Amesbury.....																	
25	Holyoke Street Railway.....	2	7	4,400	5	1,600			2	2,800								
26	Westborough and Hopkinton ⁴																	
27	Lawrence and Methuen ⁴																	
28	Nahant and Lynn ⁴																	
29	Norfolk and Bristol.....	1	3	1,150	3	1,150												
30	Marlborough and Westborough.....	1	2	700	2	700												
31	Lowell, Acton and Maynard ⁴																	
32	Medfield and Medway ⁴																	
33	Milford, Attleborough and Woonsocket.....	1	2	850	2	850												
34	Milford and Uxbridge.....	1	5	2,100	4	1,300	1	800										
35	Natick and Cohasset ⁴																	
36	Middlesex and Boston.....	1	2	600	2	600												
37	Union Street Railway.....	1	5	4,650	2	900			3	3,750								
38	New Bedford and Onset.....	1	3	950	3	950												
39	Citizens Electric Street Railway.....	1	2	960	1	350	1	640										
40	Newton and Boston.....	1	5	1,750	4	1,000	1	750										
41	Newton Street Railway ⁴																	
42	Northampton Street Railway.....	1	5	1,200	4	900	1	600										
43	Norton and Taunton.....	1	2	700	2	700												
44	Attol and Orange ⁴																	
45	Pittsfield Electric ⁴	1	4	2,010	2	710	2	1,300										
46	Plymouth and Sandwich ⁴																	
47	Broekton and Plymouth.....	1	3	1,200	3	1,200												
48	Norwood, Canton and Sharon ⁴																	
49	Shelburne Falls and Colman.....	1	1	125	1	125										2	250	
50	Springfield Street Railway.....	1	6	10,800					8	4,800	2	6,000						
51	Bristol and Norfolk ⁴																	
52	East Taunton Street Railway ⁴																	
53	Taunton and Pawtucket.....	1	2	500	2	500												
54	Templeton Street Railway.....	1	2	375	2	375												
55	Uxbridge and Blackstone ⁴																	
56	Ware and Brookfield.....	1	2	500	2	500												
57	Warren, Brookfield and Spencer.....	1	2	750	2	750												
58	Western Massachusetts Street Railway.....	1	3	900	3	900												
59	Linwood Street Railway ⁴																	
60	Worcester Consolidated.....	4	16	12,100	12	5,300	1	600	2	3,200	1	3,000				3	228	
61	Worcester and Blackstone Valley.....	1	2	900	2	900										1	75	
62	Worcester and Southbridge.....	1	2	1,000	2	1,000												
63	Worcester and Holden.....	1	2	400	2	400												
MICHIGAN.																		
	Total for state.....	24	71	46,128	38	12,328	21	13,850	8	10,900	4	9,150	5	9,517				
1	Adrian Street Railway ⁴	1	2	1,450														
2	Bay City Traction.....	2	3	750	3	750	2	1,450					1	667				
3	Benton Harbor-St. Joe Railway and Light.....																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Exclusive of current purchased from stations not operated by electric railways, but includes 3 companies for part of year.⁴ Current purchased.⁵ Current also purchased.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		300 K. W. or under.		Over 300 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.	Total for year.	Average per day.						
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.										
53	2,400	256	120,645	201	43,745	20	15,960	21	26,650	14	34,300	30	18,547	See p. 529	See p. 536	* 320,707,925	1,016,775				
7	100	3	750	3	750									See p. 529 See p. 536	See p. 536 See p. 536	1,820,835	4,960	No.	1		
19	1,180	12	3,145	12	3,145							8	11,500	See p. 529 See p. 529	See p. 536 See p. 536	* 24,644,713	105,986	No.	2		
1	10	40	20,705	29	9,053	6	5,100	5	6,550					See p. 529 See p. 529	See p. 536 See p. 536	* 58,410,475	154,549	No.	3		
16	64	52	80,481	57	7,281	2	1,000	14	17,300	9	24,300			See p. 529 See p. 529	See p. 536 See p. 536	* 138,740,309	434,905	Yes.	4		
		2	487	2	487											* 827,140	2,206	Yes.	5		
4	100	3	1,500	2	700	1	800					2	1,500	See p. 529	See p. 536	7,007,561	19,445	Yes.	6		
		2	1,000	2	1,000											* 283,200	2,750	No.	7		
		2	500	2	500											751,238	2,054	Yes.	8		
		2	215	2	215							1	72			* 104,300	286	Yes.	9		
		2	152	2	152											* 21,000	300	No.	10		
		6	1,175	6	1,175									See p. 529	See p. 536	* 2,800,000	6,880	No.	11		
																		No.	12		
																		No.	13		
																		No.	14		
																		No.	15		
																		No.	16		
																		No.	17		
5	280	5	1,175	5	1,175							3	3,500	See p. 529	See p. 536	3,336,000	9,148	Yes.	18		
		3	120	3	120											10,050,616	28,350	Yes.	19		
		2	600	2	600											1,679,793	4,328	No.	20		
																		No.	21		
																		No.	22		
																		No.	23		
		7	3,230	5	1,200	1	850	1	1,200			1	75	See p. 529	See p. 536	6,478,100	17,747	No.	24		
																		No.	25		
		3	825	3	825													No.	26		
		2	525	2	525													No.	27		
																		No.	28		
																		No.	29		
																		Yes.	30		
		2	600	2	600													No.	31		
		3	1,300	2	600	1	600							See p. 529	See p. 536	3,000,232	8,219	Yes.	32		
																		No.	33		
3	20	2	650	2	650													No.	34		
12	350	5	3,000	2	650	3	2,400											Yes.	35		
		3	725	2	650									See p. 529	See p. 536	* 134,639	3,090	No.	36		
		2	650	2	650									See p. 529 See p. 529	See p. 536 See p. 536	4,787,908	13,118	Yes.	37		
																1,137,030	3,115	Yes.	38		
																1,031,500	2,826	Yes.	39		
5	110	5	1,450	4	900	1	550							See p. 529	See p. 536	* 3,064,424	10,039	Yes.	40		
		5	810	5	810													No.	41		
		2	500	2	500													No.	42		
		4	1,595	4	1,595													No.	43		
		2	525	2	525													No.	44		
		3	250	3	250													No.	45		
		8	11,200			4	3,200			4	8,000			See p. 529	See p. 536	* 3,175,800	8,700	No.	46		
																		No.	47		
		2	400	2	400													No.	48		
		2	400	2	400													Yes.	49		
																		Yes.	50		
		2	400	2	400													No.	51		
		2	525	2	525													No.	52		
																		No.	53		
		4	625	4	625													No.	54		
																		No.	55		
																		No.	56		
																		No.	57		
																		No.	58		
		13	7,375	10	2,925	1	850	1	1,600	1	2,000	2	800	See p. 529	See p. 536	1,559,700	4,285	Yes.	59		
		3	800	3	800													No.	60		
4	115	4	300	4	300							2	800	See p. 529	See p. 536	25,616,853	70,186	Yes.	61		
																		No.	62		
																		No.	63		
																		Yes.	64		
41	1,200	49	22,330	37	9,039	4	3,200	8	10,100			41	15,565	See p. 529	See p. 536	4,590,000	12,602	Yes.	65		
																		No.	66		
		2	1,000	2	1,000							1	500	See p. 529	See p. 536	402,000	1,100	Yes.	67		
		2	750	2	750									See p. 529	See p. 536	(*)		No.	68		

* For three and one-half months only.

† Estimated.

* For two and one-half months only.

* For one and one-half months only.

* Exclusive of current purchased from stations not operated by electric railways.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		3,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
MICHIGAN Continued.																		
4	Detroit United Railway.....	6	23	21,890	7	2,390	7	4,350	6	8,400	3	6,750	1	4,500				
5	Detroit and Port Huron Shore Line.....	1	3	2,100			3	2,100					1	1,800				
6	Detroit, Jackson and Chicago.....	1	8	3,088	8	3,088												
7	Detroit, Monroe and Toledo Short Line.....	1	3	1,800			3	1,800					1	1,800				
8	Escanaba Electric.....	1	1	300	1	300												
9	Grand Rapids Railway.....	1	4	5,300	1	500			2	2,400	1	2,400						
10	Grand Rapids, Grand Haven and Muskegon ⁴																	
11	Grand Rapids, Holland and Chicago.....	1	2	1,500			2	1,500										
12	Houghton County Street Rail- way.....	1	2	1,500			2	1,500										
13	Twin City General Electric.....	1	2	575	2	575												
14	Marquette County Gas and Electric.....	1	3	750	3	750							1	750				
15	Jackson Consolidated Traction ⁴																	
16	Michigan United Railways ⁴																	
17	Manistee Light and Traction.....	2	5	1,400	4	1,200	1	600										
18	Marquette City and Presque Isle.....	1	2	385	2	385												
19	Menominee and Marinette ⁴																	
20	Muskegon Traction and Light- ing.....	1	2	950	1	400	1	550										
21	Owosso and Corunna.....	1	4	900	4	900												
22	Detroit, Flint and Saginaw.....	1	2	500	2	500												
23	Saginaw Valley Traction ⁴																	
24	Trans-St. Mary's Traction ⁴																	
MINNESOTA.																		
	Total for state.....	5	9	23,150	3	1,050	1	900	1	1,200	4	20,000	4	17,500			12	10,280
1	Interstate Traction.....																	
2	Duluth Street Railway.....	2	5	3,150	3	1,050	1	900	1	1,200								
3	Twin City Rapid Transit.....	2	4	20,000							4	20,000	2	16,000			12	10,280
4	Granite City Railway ⁴																	
5	Winona Railway and Light.....	1											2	1,500				
MISSISSIPPI.																		
	Total for state.....	9	19	6,546	14	3,296	5	3,250					5	4,200				
1	Columbus Railway, Light and Power.....	1	3	1,145	2	595	1	550										
2	Delta Electric Light, Power and Manufacturing.....	1	4	1,100	3	500	1	600										
3	Gulfport and Mississippi Coast.....	2	2	450	2	450							2	1,500				
4	Jackson Electric Railway, Light and Power.....	1											2	1,200				
5	Meridian Light and Railway.....	1	2	1,500			2	1,500					1	1,500				
6	Southern Light and Traction.....	1	4	850	4	850												
7	Pascagoula Street Railway and Power.....	1	1	300	1	300												
8	Vicksburg Railway and Light.....	1	3	1,200	2	600	1	600										
MISSOURI.																		
	Total for state.....	14	54	70,635	21	4,385	3	2,150	18	24,100	12	40,000	3	18,000				
1	Cape Girardeau-Jackson Inter- urban.....	1	2	300	2	300												
2	Water, Light and Transit.....	1	4	550	4	550												
3	St. Francois County Railway.....	1	2	500	2	500												
4	Hannibal Railway and Elec- tric ⁴																	
5	Kansas City and Westport Belt ⁴																	
6	Metropolitan Street Railway.....	3	9	22,300	3	1,100			2	3,200	4	18,000	2	16,000				
7	Missouri Water, Light and Traction.....	1	5	655	5	655												
8	St. Joseph Railway, Light, Heat and Power.....	1	4	3,400			2	1,350	2	2,450			1	2,000				
9	St. Louis, Lakewood and Grant Park ⁴																	
10	United Railways.....	3	21	37,020	1	80	1	800	11	14,150	8	22,000						
11	St. Louis, St. Charles and Western ⁴																	
12	Sedalia Light and Traction.....	1	2	350	2	350												
13	Springfield Traction.....	1	3	1,850	2	800			1	1,000								
14	Southwest Missouri Railroad.....	1	2	3,300					2	3,300								

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current also purchased.⁴ Current purchased.⁵ Estimated.⁶ These 4 engines are in the class 5,000 H. P. and over.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
16	225	21	13,600	12	3,500	2	1,000	7	8,500			3	3,950	See p. 529	See p. 536	* 58,802,659	164,000	No....	4
6	225											4	2,700	See p. 529	See p. 536	10,013,100	27,451	No....	5
7	280											8	2,000	See p. 529	See p. 536	8,472,745	23,213	No....	6
												4	2,400	See p. 529	See p. 536	6,142,070	16,828	Yes...	7
1	80	2	230	2	230									See p. 529		451,217	1,226	Yes...	8
4	80	4	3,600	1	400	2	1,600	1	1,600					See p. 529	See p. 536	13,754,740	37,684	Yes...	9
																		No....	10
3	70											2	1,000	See p. 529	See p. 536	(^c)		No....	11
1	50	1	500	1	600							1	500	See p. 529	See p. 536	2,854,104	7,829	No....	12
1	85	2	124	2	124							6	305	See p. 529		1,010,128	2,767	Yes...	13
		3	260	3	260							4	1,000	See p. 529		693,300	1,900	Yes...	14
																		No....	15
		3	550	3	550							2	330	See p. 529	See p. 536	730,000	2,000	No....	16
		3	375	3	375									See p. 529		328,500	900	Yes...	17
																		Yes...	18
		2	500	2	500							3	600			1,020,028	2,800	No....	19
																		Yes...	20
		2	350	2	350							3	300	See p. 529		* 821,000	2,249	Yes...	21
		2	500	2	500											365,000	1,000	Yes...	22
																		No....	23
																		No....	24
4	300	16	4,318	13	2,288	3	2,030					16	20,000	See p. 529	See p. 536	* 101,450,185	277,945		
1	50	2	250	2	250											(^c)		No....	1
3	250	12	2,658	11	2,038	1	630					14	20,000	See p. 529	See p. 536	* 6,840,061	18,756	Yes...	2
		2	1,400			2	1,400							See p. 529		91,704,720	251,410	No....	3
												2	1,000	See p. 529		2,538,404	7,779	No....	4
																		Yes...	5
2	53	11	1,980	11	1,980							19	4,320	See p. 529	See p. 536	* 14,610,802	41,026		
												3	660	See p. 529		* 364,000	2,000	Yes...	1
		2	200	2	200							3	640	See p. 529		1,103,760	3,024	Yes...	2
		1	200	1	200							3	1,150	See p. 529	See p. 536	6,843,750	18,760	Yes...	3
1	33											2	1,000	See p. 529	See p. 536	2,788,900	7,641	Yes...	4
		1	500	1	500							1	500	See p. 529	See p. 536	528,402	1,450	No....	5
		2	300	2	300							4	500	See p. 529		1,008,000	2,767	Yes...	6
		1	225	1	225											470,120	1,285	No....	7
1	20	4	555	4	555							3	470	See p. 529		1,500,000	4,109	Yes...	8
33	2,887	37	20,775	17	3,125	8	6,200	6	7,960	11	13,500	22	20,330	See p. 530	See p. 536	* 228,575,102	626,231		
		2	500	2	200											290,200	820	No....	1
1	10	2	205	2	205							3	180	See p. 530		350,400	960	Yes...	2
		2	300	2	300											126,000	345	Yes...	3
																		No....	4
																		No....	5
15	202	7	5,350	3	850	1	530	3	3,900			6	19,000	See p. 530	See p. 536	108,554,591	297,411	Yes...	6
		2	175	2	175							11	400			438,000	1,200	Yes...	7
		3	2,275	1	425	1	850	1	1,000			2	2,100	See p. 530		10,134,262	27,765	Yes...	8
																		No....	9
15	2,573	14	21,300			6	4,800	2	3,000	6	13,500	11	6,000	See p. 530	See p. 536	* 90,014,262	271,271	Yes...	10
																		No....	11
		3	420	3	420											1,072,763	2,929	Yes...	12
2	100	2	550	2	550							2	900	See p. 530		2,298,754	6,270	Yes...	13
												2	1,750	See p. 530	See p. 536	* 6,296,370	17,350	No....	14

¹ Exclusive of current purchased from stations not operated by electric railways.² Includes 1 company for part of year.³ For six months only.⁴ Includes 3 engines of 15,000 H. P. in the class 5,000 H. P. and over.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.								STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹			
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
MONTANA.																		
	Total for state.....	1	2	1,150	1	400	1	750										
1	Anaconda Copper Mining ²																	
2	Bosman Street Railway.....																	
3	Butte Electric Railway.....	1	2	1,150	1	400	1	750										
4	Great Falls Street Railway ³																	
5	Helena Light and Railway ⁴																	
NEBRASKA.																		
	Total for state.....	3	12	9,041	5	1,541	2	1,340	5	6,160			1	2,640				
1	Citizens Railway ⁵																	
2	Omaha, Lincoln and Beatrice ¹																	
3	Lincoln Traction.....	1	6	2,776	4	1,106	1	670	1	1,000								
4	Nebraska City Street Railway ²																	
5	Omaha and Council Bluffs.....	2	6	6,265	1	435	1	670	4	5,160			1	2,640				
6	Red Cloud Street Railway ³																	
7	Omaha and Southern Inter- urban. ⁴																	
8	Sioux City, Crystal Lake and Homer. ⁵																	
NEVADA.																		
	Total for state.....																	
1	Reno Traction ¹																	
NEW HAMPSHIRE.																		
	Total for state.....	6	11	2,820	11	2,820											2	800
1	Berlin Street Railway.....	1	(7)	(7)														
2	Claremont Railway and Light- ing.....	1	3	900	3	900											2	800
3	Boston and Maine (electric branch) ¹	1	2	600	2	600												
4	Chester and Derry.....																	
5	Dover, Somersworth and Rochester ²																	
6	Exeter, Hampton and Ames- bury ³																	
7	Hudson, Pelham and Salem ¹																	
8	Keene Electric Railway.....	1	2	220	2	220												
9	Lacomm Street Railway.....	1	2	300	2	300												
10	Manchester and Derry ¹																	
11	Manchester Street Railway ²																	
12	Manchester and Nashua ³																	
13	Haverhill, Plastow and New- ton. ¹																	
14	Portsmouth Electric Railway (Boston and Maine) ²	1	2	600	2	600												
15	Portsmouth and Exeter ³																	
16	Seshrook and Hampton Beach. ⁴																	
NEW JERSEY.																		
	Total for state.....	24	67	48,405	36	11,725	15	9,860	8	9,050	8	17,750	15	41,595				
1	Atlantic Coast Electric Rail- way.....	2	2	1,200			2	1,200					3	2,250				
2	Central Passenger Railway ¹																	
3	West Jersey and Seashore (At- lantic City and Longport branch). ²	1	4	1,600	2	600	2	1,200										
4	Atlantic City and Suburban... ³	1	2	1,200			2	1,200										
5	Atlantic City and Shore ⁴																	
6	Bridgeton and Millville ⁵																	
7	West Jersey and Seashore (Camden and Atlantic City branch). ¹	1											4	10,720				
8	Cape May, Delaware Bay and Sewell's Point.....	1	2	635	2	635												
9	Ocean Street Passenger Rail- way. ²																	
10	New Jersey and Hudson River Railway and Ferry.....	1	4	1,730	3	1,000	1	730					1	1,075				
11	Jersey Central Traction.....	1	3	900	2	200	1	700					1	800				
12	Millville Traction.....	1	2	600	2	600												
13	Morris County Traction ³																	
14	Burlington County Railway.....	1	2	940	2	940												
15	Public Service Railway.....	7	22	22,050	14	4,730	3	2,000	7	7,550	8	17,730	6	23,750				
16	Ocean City Electric Railroad.....																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current purchased.⁴ Exclusive of current purchased from stations not operated by electric railways.⁵ Animal power.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
		3	300	3	300									See p. 530	See p. 536			No.	1
		1	75	1	75									See p. 530		(¹)		No.	2
		2	725	2	725									See p. 530	See p. 536			No.	3
														See p. 530	See p. 536			No.	4
														See p. 530	See p. 536			No.	5
6	361	9	5,575	5	1,725	1	850	3	3,000			5	2,425	See p. 530	See p. 536	* 20,067,682	54,979		
														See p. 530	See p. 536			No.	1
1	35	3	900	3	900							4	425	See p. 530		4,047,593	11,069	No.	2
5	326	6	4,675	2	825	1	860	3	3,000			1	2,000	See p. 530	See p. 536	16,020,089	43,880	Yes.	3
														See p. 530	See p. 536			No.	4
														See p. 530	See p. 536			No.	5
														See p. 530	See p. 536			No.	6
														See p. 530	See p. 536			No.	7
														See p. 530	See p. 536			No.	8
														See p. 530	See p. 536			No.	
2	10	14	2,330	14	2,330							3	390	See p. 530	See p. 536	* 2,930,815	5,064		1
		2	450	2	450									See p. 530	See p. 536	908,485	2,489	No.	1
		2	500	2	500							2	300	See p. 530	See p. 536	730,000	2,000	Yes.	2
		3	350	3	350									See p. 530	See p. 536	(¹)		No.	3
		2	220	2	220									See p. 530	See p. 536	(¹)		No.	4
														See p. 530	See p. 536			No.	5
														See p. 530	See p. 536			No.	6
		2	160	2	160									See p. 530	See p. 536	227,880	624	No.	7
		1	250	1	250									See p. 530	See p. 536	(¹)		No.	8
														See p. 530	See p. 536			No.	9
														See p. 530	See p. 536			No.	10
														See p. 530	See p. 536			No.	11
														See p. 530	See p. 536			No.	12
														See p. 530	See p. 536			No.	13
2	10	2	400	2	400									See p. 530	See p. 536	1,084,453	2,971	No.	14
														See p. 530	See p. 536			No.	15
														See p. 530	See p. 536			No.	16
29	1,935	12	22,882	32	14,607	7	5,275	3	4,000			24	42,850	See p. 530	See p. 536	* 177,792,542	488,914		
		2	800	2	800							3	1,500	See p. 530		2,096,300	5,742	Yes.	1
		4	1,450	4	1,450									See p. 530		3,026,028	8,293	No.	2
		2	500	2	800									See p. 530	See p. 536	1,425,300	3,913	No.	4
														See p. 530	See p. 536			No.	5
11	1,035											4	8,000	See p. 530	See p. 536	21,118,000	57,880	No.	6
		2	407	2	407									See p. 530	See p. 536	306,132	836	Yes.	8
														See p. 530	See p. 536			No.	9
3	95	4	1,300	4	1,300							1	800	See p. 530	See p. 536	5,370,594	14,714	Yes.	10
		2	575	2	575							1	600	See p. 530	See p. 536	2,455,600	6,728	Yes.	11
		2	400	2	400									See p. 530	See p. 536	486,607	1,334	No.	12
														See p. 530	See p. 536			No.	13
		2	600	2	600									See p. 530	See p. 536	1,016,880	2,786	No.	14
15	805	22	11,375	14	3,850	6	4,825	2	3,000			15	31,950	See p. 530	See p. 536	* 126,211,267	341,263	Yes.	15
		1	200	1	200									See p. 530	See p. 536	(¹)		No.	16

* Steam power.

† Power rented.

* Exclusive of current purchased from stations not operated by electric railways, but includes 1 company for part of year.

* Current also purchased.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
NEW JERSEY—Continued.																		
17	Easton and Washington.....	1	2	1,300			2	1,300										
18	Point Pleasant Traction.....	1	1	200	1	200												
19	Monmouth County Electric.....																	
20	Hudson River Traction.....	1	3	800	3	800												
21	New Jersey Rapid Transit ²																	
22	Trenton Street Railway.....	1	4	3,300	2	1,000	1	800	1	1,500								
23	Camden and Trenton ³																	
24	New Jersey and Pennsylvania.....	1	1	750			1	750										
25	Trenton and New Brunswick.....	1	2	700	2	700												
26	Five Mile Beach Electric Rail- way.....	1	1	300	1	300												
NEW MEXICO.																		
	Total for territory.....	2	4	1,180	4	1,180												
1	Albuquerque Traction.....	1																
2	Las Vegas Railway and Power.....	1	4	1,180	4	1,180												
NEW YORK.																		
	Total for state.....	77	249	334,765	137	38,640	23	16,975	37	41,650	52	123,750	16	64,750	6	1,975	24	9,485
1	Albany and Hudson Railroad.....	1	3	2,750			1	750	2	2,000							7	6,285
2	United Traction.....	3	8	4,750	5	1,750			3	3,000								
3	Hudson Valley Railway.....	5	6	3,150	5	2,150			1	1,000							6	1,720
4	Troy and New England.....	1	2	1,000	2	1,000												
5	St. Lawrence International.....	1	2	425	2	425												
6	Babylon Railroad ⁴																	
7	Eastern New York Railroad.....	1	1	350	1	350												
8	Binghamton Railway.....	2	5	1,500	4	750	1	750										
9	International Railway.....	2	5	7,500					3	3,000	2	4,500						
10	Croton Street Railway (Buffalo) ⁵																	
11	Buffalo and Depew.....	1	2	750	2	750												
12	Buffalo Southern.....	2	2	900	2	900								2	325			
13	Buffalo and Lake Erie.....	5	17	6,050	15	3,350			2	2,700								
14	Buffalo and Williamsville.....	2	2	275	2	275												
15	Catskill Electric Railway ⁶																	
16	Corning and Painted Post ⁷																	
17	Cortland County Traction.....	1	6	1,500	6	1,500												
18	Elmira Water, Light and Rail- road.....	1	6	2,385	6	1,100	3	2,225					1	3,000				
19	Elmira and Seneca Lake.....	1	2	400	2	400												
20	Fishkill Electric Railway ⁸																	
21	Lake Ontario and Riverside ⁹																	
22	Glen Cove Railroad ¹⁰																	
23	Adirondack Lakes' Traction ¹¹																	
24	Fonda, Johnstown and Glo- versville.....	1	3	4,500					3	4,500								
25	Great South Bay Ferry ¹²																	
26	New York and Long Island.....	1	2	750	2	750												
27	Hornellsville Electric Railway ¹³																	
28	Hornellsville and Canisteo ¹⁴																	
29	Huntington Railroad.....	1	2	200	2	200												
30	Ithaca Street Railway ¹⁵																	
31	Jamestown Street Railway.....																	
32	Chautauque Traction.....	1	3	425	3	425												
33	Keseeville, etc., Railroad ¹⁶												3	5,000				
34	Kingston Consolidated.....	1	4	950	4	950												
35	Lima-Honeoye Light and Rail- road.....	1	2	350	2	350												
36	Walkill Transit.....	1	2	825	2	825												
37	Orange County Traction.....	1	3	750	3	750												
38	New Paltz, Highland and Poughkeepsie.....	1	2	225	2	225												
39	New York City Railway.....	2	19	95,000							19	95,000						
40	Forty-second Street, Manhat- tanville and St. Nicholas Avenue ¹⁷																	
41	Dry Dock, East Broadway and Battery ¹⁸																	
42	New York City Interborough ¹⁹																	
43	Southern Boulevard Railroad ²⁰																	
44	Yonkers Railroad ²¹																	
45	Union Railway ²²																	
46	Tarrytown, White Plains and Mamaroneck.....	1	3	1,445	3	1,445												
47	Westchester Electric Railroad ²³																	
48	Interborough Rapid Transit.....	2	16	88,000							16	88,000	4	9,250				
49	Pelham Park Railroad ²⁴																	
50	City Island Railroad ²⁵																	
51	Brooklyn Heights Railroad.....	3	10	25,500	3	1,500			6	6,000	7	18,000						

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current also purchased.⁴ For four months only.⁵ Current purchased.⁶ Exclusive of current purchased from stations not operated by electric railways.⁷ Includes 35 engines of 183,000 H. P. in the class 5,000 H. P. and over.

[illegible]

* Exclusive of current purchased from stations not operated by electric railways, but includes 5 companies for part of year.

¹⁰ Estimated²¹ Animal power.

¹² For ten and one-half months only; current purchased for remainder of year.

¹³ For eight months only; current purchased for remainder of year.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
NEW YORK—Continued.																		
52	Nassau Electric.....	2	14	12,250	3	1,500	7	5,250	4	5,500								
53	Brooklyn Union Elevated.....	1	6	3,700	2	750	3	1,950	1	1,000								
54	Brooklyn Queens County and Suburban.....																	
55	South Brooklyn Railway.....																	
56	Sea Beach Railway.....																	
57	Coney Island and Gravesend.....																	
58	Transit Development Co.....	2	8	32,000							8	32,000	4	40,000				
59	Bridge Operating Co.....																	
60	Coney Island and Brooklyn.....	3	19	4,650	17	2,500			2	2,150								
61	Van Brunt Street and Erie Basin.....																	
62	Marine Railway.....																	
63	New York and Queens County.....	1	5	3,700	2	900	1	800	2	2,000								
64	Long Island Electric.....																	
65	Ocean Electric Railway.....																	
66	Staten Island Midland.....	1	3	1,350	3	1,350												
67	Richmond Light and Railroad.....	1	5	3,700	2	1,000	2	1,500	1	1,200			3	3,500				
68	Southfield Beach Railroad.....																	
69	Electric City Railway.....																	
70	Niagara Gorge Railroad.....																	
71	Northport Traction.....																	
72	Ogdensburg Street Railway.....	1																
73	Western New York and Penn- sylvania.....	5	7	2,195	7	2,195								4	1,650		4	330
74	Oneida Railway.....																	
75	Oneonta and Mohawk Valley.....	1	2	1,500			2	1,500										
76	Hudson River and Eastern.....																	
77	Dawago Traction.....																	
78	Pesckskill Lighting and Rail- road.....																	
79	Putnam and Westchester.....																	
80	Penn Yan, Keuka Park and Branchport.....	1	2	500	2	500												
81	Plattsburgh Traction.....																	
82	New York and Stamford.....	1	3	2,250	1	350	1	700	1	1,200								
83	Port Jervis Electric Light, Power, Gas and Railroad.....	1	3	450	3	450												
84	Poughkeepsie City and Wap- pingers Falls.....																	
85	Cohoes Railway.....																	
86	Rochester Railway.....																	
87	Rochester, Charlotte and Manitou.....	1	3	500	3	500												
88	Rochester, Syracuse and East- ern.....	1											2	4,000				
89	Rochester and Eastern Rapid Railway.....	1	2	2,000					2	2,000								
90	Rochester and Suburban.....																	
91	New York and North Shore.....																	
92	Schenectady Railway.....																	
93	Nassau County Railway.....																	
94	Geneva, Waterloo, etc., Trac- tion.....	1	3	665	3	665												
95	Syracuse Rapid Transit.....	1	6	4,650	3	1,500	1	750	2	2,400								
96	Syracuse and Suburban.....	1	1	800			1	800									1	650
97	Syracuse, Lake Shore and Northern.....	1	2	1,000	2	1,000												
98	Amherst and Syracuse.....	1	2	2,000					2	2,000								
99	Utica and Mohawk Valley.....																	
100	Black River Traction.....	1	1	300	1	300											6	500
101	Elmira, Corning and Waverly.....																	
NORTH CAROLINA.																		
Total for state.....		11	16	4,910	14	3,535	2	1,275					6	4,350			20	2,850
1	Asheville Electric.....	2	3	1,110	2	585	1	525									2	400
2	Asheville Rapid Transit.....																	
3	Charlotte Electric Railway, Light and Power.....	1	2	750	2	750												
4	Durham Traction.....	1	3	400	3	400							1	750				
5	Fayetteville Street Railway and Power.....																	
6	Greensboro Electric.....	1	4	1,500	3	750	1	750										
7	Laurel Park Street Railway.....																	
8	Raleigh Electric.....	2	1	100	1	100							2	1,400			2	450
9	Salisbury and Spencer Rail- way.....	1	2	600	2	600												
10	Tide Water Power.....	1	1	250	1	250							2	1,200				
11	Fries Manufacturing and Power.....	2											1	1,000			16	2,000

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ For five months only; current purchased for remainder of year.⁴ Current purchased.⁵ Current also purchased.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ²		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.	Total for year.	Average per day.						
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.										
3	75	13	8,240	7	3,040	4	2,900	2	2,300					See p. 530		22,788,802	62,435	No.	82		
		2	890	2	880									See p. 530	See p. 537	¹ 294,480	1,852	No.	83		
																		No.	84		
														See p. 530	See p. 537			No.	85		
																		No.	86		
34	3,470	2	5,400							2	5,400	10	46,200	See p. 530	See p. 537	192,270,303	526,768	Yes.	87		
		19	6,325	17	4,725	2	1,000									¹ 19,000,500	53,700	No.	88		
																		No.	89		
																		No.	90		
1	40	4	1,000	4	1,000							1	500	See p. 530	See p. 537	¹ 11,009,000	32,052	No.	91		
														See p. 530	See p. 537			No.	92		
		2	600	2	600									See p. 530		¹ 2,200,120	6,274	No.	93		
		3	1,600	2	800	1	800					3	3,000	See p. 530		9,551,351	26,167	Yes.	94		
																		No.	95		
																		No.	96		
																		No.	97		
2	170	1	150	1	150							3	900	See p. 530	See p. 537	613,200	1,680	No.	98		
		8	1,800	8	1,800											3,110,000	14,000	No.	99		
																		No.	100		
2	80											2	1,000	See p. 530	See p. 537	4,000,000	11,000	Yes.	101		
																		No.	102		
														See p. 530	See p. 537			No.	103		
		2	300	2	300											793,875	2,175	No.	104		
																		No.	105		
		3	1,450	2	650	1	800									2,731,004	7,484	Yes.	106		
		1	80	1	80							2	235			1,501,114	4,112	Yes.	107		
														See p. 531				No.	108		
																		No.	109		
														See p. 531	See p. 537	¹ 300,571	1,447	Yes.	110		
		3	247	3	247							2	3,000	See p. 531	See p. 537	¹ 3,730,000	15,325	No.	111		
2	200											2	1,300	See p. 531	See p. 537	5,475,000	15,000	Yes.	112		
																		No.	113		
														See p. 531	See p. 537			No.	114		
		2	400	2	400											374,125	1,025	No.	115		
		6	3,100	4	1,400	2	1,700								See p. 537	¹ 360,580	1,070	No.	116		
		3	950	2	950									See p. 531		1,752,000	4,900	No.	117		
		2	800	2	800											1,794,150	4,916	No.	118		
3	70											2	1,300	See p. 531	See p. 537	3,816,460	10,456	No.	119		
		8	800	8	800											1,241,000	3,400	No.	120		
																		No.	121		
13	415	12	2,170	12	2,170							23	7,665	See p. 531	See p. 537	¹ 20,797,498	56,983		1		
		1	300	1	300							4	950	See p. 531		3,537,075	9,691	Yes.	2		
		4	600	4	600							2	240	See p. 531	See p. 537	1,475,732	4,043	Yes.	3		
		1	200	1	200							3	775	See p. 531		2,000,000	5,479	Yes.	4		
																		No.	5		
		2	400	2	400							3	900	See p. 531		2,842,920	7,788	Yes.	6		
																		No.	7		
10	90	2	300	2	300							4	1,400	See p. 531	See p. 537	1,677,267	4,595	Yes.	8		
1	250	1	150	1	150							2	350			1,095,000	3,000	Yes.	9		
																		No.	10		
1	50	1	100	1	100							2	800	See p. 531	See p. 537	2,612,015	7,156	Yes.	11		
1	25											3	2,250	See p. 531	See p. 537	5,557,498	15,226	Yes.	12		

¹ For seven months only; current also purchased.² For eight months only.³ Exclusive of current purchased from stations not operated by electric railways.⁴ Gasoline motors.⁵ Steam power.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.								STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹			
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
NORTH DAKOTA.																		
	Total for state.....	2	3	250	3	250												
1	State of North Dakota.....	1	2	100	2	100												
2	Fargo and Moorhead.....																	
3	Grand Forks Transit.....																	
4	Valley City Street and Inter- urban.	1	1	150	1	150												
OHIO.																		
	Total for state.....	92	208	181,350	120	28,395	80	56,305	47	57,739	12	28,920	28	47,465	2	250	5	1,250
1	Northern Ohio.....	6	10	11,000	8	1,700			8	9,300			2	6,125				
2	Stark Electric.....	1	2	1,500			2	1,500										
3	Ashtabula Rapid Transit.....	1	3	475	3	475												
4	Pennsylvania and Ohio.....	1	3	1,125	3	1,125												
5	Lake Erie, Bowling Green and Napoleon.....	1	3	1,050	3	1,050												
6	Cambridge Power, Light and Traction.....	1	4	1,330	4	1,330												
7	Chillicothe Electric.....	1	4	1,600	4	1,600												
8	Cincinnati Traction.....	7	23	23,994	1	600	11	8,670	9	10,804	2	4,090	1	2,250				
9	Price Hill Inclined Plane.....	1	4	1,600	4	1,000												
10	Cincinnati, Lawrenceburg and Aurora.....	1	2	1,300			2	1,300										
11	Cincinnati Northern Traction.....	4	8	3,200	6	2,100	2	1,200										
12	Cincinnati and Columbus.....	1	2	2,500					2	2,500								
13	Ohio Traction.....	1	3	1,580	1	90	2	1,500										
14	Cincinnati, Milford and Love- land.....	1	2	1,500			2	1,500										
15	Interurban Railway and Ter- minal.....	2	9	4,440	3	240	6	4,200										
16	Cleveland Electric Railway.....	3	23	26,535	9	2,075	4	2,660	2	2,600	5	19,200						
17	Low Fare Railway.....																	
18	Municipal Traction.....								2	2,670								
19	Eastern Ohio Traction.....	2	6	2,300	3	500	3	1,800										
20	Cleveland, Southwestern and Columbus.....	4	10	3,700	8	2,300	2	1,500					3	3,200				
21	Cleveland, Painesville and Eastern.....	1	3	1,550	2	700	1	850										
22	Columbus, Urbana and West- ern.....																	
23	Columbus, New Albany and Johnstown.....																	
24	Columbus Railway and Light. Ohio and Southern.....	3	11	8,550	3	975	5	3,300	3	4,275			3	3,750				
25	Scioto Valley Traction.....	1	2	3,000					2	3,000								
26	Columbus, Delaware and Ma- rion.....	1											2	3,900				
27	Ohio Electric Railway.....	6	17	12,550	8	2,950	6	4,600	2	2,500	1	2,300	4	4,340			5	1,250
28	City Railway.....	1	4	2,000	4	2,000												
29	Peoples Railway.....	1	3	1,800	2	800			1	1,000								
30	Oakwood Street Railway.....	1	2	800	2	800												
31	Dayton and Troy.....	1	2	1,200			2	1,200										
32	Dayton, Covington and Piqua. Dayton and Xenia.....	1	2	900	2	900												
33	Peoples Gas and Electric.....	1	2	1,200			2	1,200										
34	Columbus, Magnette Springs and Northern.....	1	1	360	1	360												
35	United Electric.....	1	5	465	5	465												
36	East Liverpool Traction and Light.....	2	10	3,020	9	2,270	1	750										
37	Toledo, Fostoria and Findlay. Fremont City Railway.....	1	2	700	2	700												
38	Lancaster Traction and Power. Lebanon and Franklin.....	1													2	250		
39	Western Ohio Railway.....	1	6	5,000	2	1,000			4	4,000								
40	Lorain Street Railroad.....	1	2	1,000	2	1,000												
41	Mansfield Railway, Light and Power.....	1	3	1,625	2	800	1	825										
42	Cincinnati, Hamilton and Dayton.....																	
43	Mount Vernon Railway and Light.....	1	3	350	3	350												
44	Sandusky, Norwalk and Mansfield.....																	
45	Cleveland, Painesville and Ashtabula.....	1	2	1,500			2	1,500										
46	Ohio River Electric.....	1	2	500	2	500												
47	Portsmouth Street Railroad.....	1											4	2,400				
48	Victory Park Railway.....	1	1	300	1	300												

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Exclusive of current purchased from stations not operated by electric railways.⁴ Estimated.⁵ Current purchased.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.				DIRECT-CURRENT DYNAMOS.								ALTERNATING-CURRENT DYNAMOS.		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
		4	274	4	274											32,120	88		
		2	144	2	144											12,570	28	No.	1
		1	50	1	50											(*)		No.	2
		1	80	1	80											13,250	50	No.	3
																		No.	4
87	5,821	216	86,625	183	48,275	14	10,700	16	21,450	3	6,400	109	68,824	See p. 531	See p. 537	449,702,461	1,234,732		
9	272	13	2,572	12	1,772	1	800					8	6,950	See p. 531	See p. 537	35,706,535	97,827	Yes.	1
		3	850	3	650							2	2,847,000	See p. 531	See p. 537	7,800	Yes.	2	
		1	150	1	150							2	750	See p. 531	See p. 537	2,750	Yes.	3	
		5	375	5	375							1	200	See p. 531	See p. 537	7,200	Yes.	4	
																365,000	1,000	Yes.	5
		3	494	3	494							2	225			456,250	1,250	Yes.	6
3	50	2	550	2	550							3	850	See p. 531	See p. 537	700,600	2,084	Yes.	7
6	1,342	33	17,850	22	6,800	7	5,650	4	5,400			1	1,500	See p. 531	See p. 537	56,258,395	154,133	No.	8
		2	1,000	2	1,000											2,300,325	6,302	No.	9
		8	2,100	8	2,100									See p. 531	See p. 537	17,538,816	20,654	No.	11
1	150	2	1,000	2	1,000							2	1,600	See p. 531	See p. 537	3,102,500	8,500	Yes.	12
												2	1,000		See p. 537	2,400,020	9,602	No.	13
		2	800	2	800							4	2,000	See p. 531	See p. 537	1,647,500	4,514	No.	14
6	300	28	19,184	18	3,184	1	800	7	10,800	2	4,400			See p. 531	See p. 537	4,270,500	11,700	Yes.	16
		2	2,250	2	2,250			2	2,250					See p. 531	See p. 537	88,256,033	241,709	Yes.	16
1	80	5	1,500	5	1,500									See p. 531	See p. 537	1,600,000	2,296	No.	17
2	80	10	2,750	10	2,750							2	2,000	See p. 531	See p. 537	2,438,544	6,681	No.	18
		3	900	3	900									See p. 531		14,194,485	23,889	Yes.	20
																13,302,328	9,297	Yes.	21
																		No.	22
																		No.	23
		11	5,700	8	2,850	1	800	2	2,000			3	2,500	See p. 531	See p. 537	18,922,806	51,843	No.	24
7	580											2	2,000	See p. 531	See p. 537	6,548,310	17,940	No.	25
1	37											3	2,875	See p. 531	See p. 537	5,909,392	16,190	Yes.	26
1	80	7	2,175	7	2,175							11	6,750	See p. 531	See p. 537	29,456,687	80,703	Yes.	28
		4	1,200	4	1,200									See p. 531	See p. 537	3,285,000	9,000	No.	29
		3	1,400	2	600	1	800							See p. 531	See p. 537	3,931,510	10,771	No.	30
		2	000	2	000									See p. 531	See p. 537	774,600	2,122	Yes.	31
		2	800	2	800									See p. 531	See p. 537	2,555,000	7,000	No.	32
		2	000	2	000									See p. 531	See p. 537	1,191,000	3,263	Yes.	33
		2	800	2	800									See p. 531	See p. 537	1,750,595	4,795	Yes.	34
		1	200	1	200											34,931	95	No.	35
		1	80	1	80							5	335			452,000	1,240	Yes.	37
2	550	3	950	3	950							4	1,000	See p. 537		4,337,760	11,840	Yes.	38
1	10	2	500	2	500											920,004	2,521	Yes.	39
		3	255	3	255									See p. 537		295,000	810	No.	40
4	25	2	200	2	200							4	2,300	See p. 531	See p. 537	10,804,139	29,000	Yes.	43
		2	700	2	700									See p. 531	See p. 537	3,099,111	8,463	Yes.	44
		2	1,100	1	500	1	600					2	1,066	See p. 531	See p. 537	5,400,000	14,795	Yes.	45
																		No.	46
		3	310	3	310							2	250	See p. 531	See p. 537	490,685	1,369	Yes.	47
														See p. 537				No.	48
		2	400	2	400							2	920		See p. 537	3,024,400	8,286	Yes.	49
2	180	2	220	2	220							4	1,800	See p. 531	See p. 537	467,822	1,270	Yes.	50
												2	75			4,015,000	11,000	Yes.	51
																45,000	500	Yes.	51

* Exclusive of current purchased from stations not operated by electric railways, but includes 2 companies for part of year.

† For three months only; current purchased for remainder of year.

‡ Current also purchased.

§ Animal power.

|| Estimated, and for three months only.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.								STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹			
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.								
OHIO—Continued.																		
53	Salem Electric Railway ¹																	
54	Springfield Railway	1	2	1,400			2	1,400										
55	Springfield, Troy and Piqua	1	2	1,700			2	1,700										
56	Washington Traction ²																	
57	Springfield and Xenia ²	1	3															
58	Steubenville and Wheeling	1	3	2,300	1	300			2	2,000								
59	Steubenville and East Liverpool	1	3	2,200	3	700	2	1,500				2	1,400					
60	Electric Railway and Power ¹																	
61	Tiffin, Fostoria and Eastern	1	2	600	2	600												
62	Toledo Railways and Light	4	10	11,250			6	3,850	3	4,200	1	3,200	5	14,700				
63	Toledo Urban and Interurban	1	2	3,000					2	3,000								
64	Toledo and Indiana	1	2	2,000					2	2,000								
65	Lake Shore	2	9	6,130			8	4,800	1	1,330			2	5,360				
66	Maumee Valley Railways and Light ¹																	
67	Toledo, Port Clinton and Lakeside	1	2	2,560					2	2,560								
68	Toledo and Western	1	3	1,950	1	450	2	1,500										
69	Toledo, Ottawa Beach and Northern ¹																	
70	Wellston and Jackson Belt	1	2	500	2	500												
71	Youngstown and Southern ²																	
72	Mahoning and Shenango	3	9	2,400	9	2,400												
73	Southeastern Ohio Railway	1	2	1,500			2	1,500										
OKLAHOMA.																		
	Total for state	1	3	1,750	2	1,000	1	750										
1	End City Railway ¹																	
2	Guthrie Railway ¹																	
3	Choctaw Railway	1	3	1,750	2	1,000	1	750										
4	Muskogee Electric Traction																	
5	Oklahoma Inter-Urban Traction ¹																	
6	Oklahoma Railway ¹																	
7	Shawnee-Township Traction ¹																	
8	Tulsa Street Railway ¹																	
OREGON.																		
	Total for state	1																
1	Albany Street Railway ¹																	
2	Astoria Electric ¹																	
3	Portland, Eugene and Eastern Railway ¹																	
4	Forest Grove Transportation	1	(?)	(?)														
5	Portland General Electric (Oregon City division) ¹																	
6	Portland Railway ¹																	
7	Portland Railway, Light and Power ¹																	
8	Portland General Electric (Salem division) ¹																	
PENNSYLVANIA.																		
	Total for state	109	274	181,879	157	47,319	65	44,810	35	45,350	17	44,400	41	107,825	9	3,050	5	625
1	Lehigh Valley Transit	6	16	6,950	10	2,940	6	4,010					4	7,500			3	225
2	Altoona and Logan Valley	1	3	2,250			3	2,250										
3	Pittsburg and Beaver	1	2	440	2	440												
4	Beaver Valley Traction	1	3	1,128	3	1,128												
5	Patterson Heights Street Railway ¹																	
6	Columbia and Montour	1	2	700	2	700												
7	Butler Passenger Railway ¹																	
8	Pittsburg and Butler	1											2	2,400				
9	Carlisle and Mount Holly ¹																	
10	Chambersburg and Gettysburg ¹																	
11	Westside Electric Street Railway ¹																	
12	Webster, Monacaen, etc. ¹																	
13	Chester Traction	1	6	2,600	4	950	1	650	1	1,000								
14	Philadelphia and Chester ¹																	
15	Clairton Street Railway ¹																	
16	Philadelphia, Coatesville and Lancaster ¹																	
17	Corry and Columbus	1													1	110		
18	Blue Ridge Traction	1	2	500	2	500												
19	Danville and Sunbury ¹																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current purchased.⁴ Current also purchased.⁵ Exclusive of current purchased from stations not operated by electric railways.⁶ Animal power.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		General electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
		2	925	2	925							2	1,080	See p. 531 See p. 531 See p. 531	See p. 537 See p. 537 See p. 537	2,484,536 3,832,500	6,807 10,500	No. Yes. No.	53 54 55
		3	1,175	3	1,175									See p. 531	See p. 537	3,650,000	10,000	No.	56
5	180	3	1,050	3	1,050							8	1,698	See p. 531	See p. 537	3,292,054	9,019	Yes.	57
																		No.	58
1	5	2	300	2	300							7	12,310	See p. 531	See p. 537	1,428,975	3,915	No.	59
19	1,450	11	6,750	9	3,750			1	1,000	1	2,000	2	2,000	See p. 531	See p. 537	48,156,653	131,936	Yes.	60
												2	1,200	See p. 531	See p. 537	7,038,690	19,284	Yes.	61
12	300	2	800	2	800							9	7,800	See p. 531	See p. 537	3,650,000	10,000	Yes.	62
																19,469,475	53,340	Yes.	63
																		No.	64
4	280											2	1,000	See p. 531	See p. 537	4,951,100	13,565	Yes.	65
												3	1,390	See p. 531	See p. 537	5,290,000	14,466	Yes.	66
																		No.	67
		2	500	2	500							1	90	See p. 531	See p. 537	512,645	1,405	Yes.	68
		11	1,800	11	1,800									See p. 531	See p. 537	6,620,860	18,139	No.	69
		2	1,200			2	1,200									986,500	2,700	Yes.	70
																		No.	71
1	50	2	300	2	300							3	1,300	See p. 531	See p. 537	6,007,500	5,500	No.	72
																		No.	73
1	50	2	300	2	300							3	1,300	See p. 531	See p. 537	2,007,500 (²)	5,500	No.	1
																		No.	2
																		No.	3
																		No.	4
																		No.	5
																		No.	6
																		No.	7
																		No.	8
		1	80	1	80									See p. 531		73,000	200	No.	1
																		No.	2
																		No.	3
		1	80	1	80									See p. 531		73,000	200	No.	4
																		No.	5
																		No.	6
																		No.	7
																		No.	8
148	5,857	259	108,432	211	60,282	31	23,600	17	24,550			66	86,329	See p. 531	See p. 537	6,623,611,290	1,444,921	No.	1
40	725	17	5,205	17	5,205							4	5,500	See p. 531	See p. 537	16,930,954	46,441	Yes.	2
		2	1,500	2	1,500									See p. 531		5,900,453	16,166	No.	3
1	10	2	400	2	400									See p. 531		275,680	1,531	No.	4
		3	700	3	700											3,824,965	10,452	Yes.	5
																		No.	6
		2	400	2	400							2	400	See p. 531	See p. 537	1,367,000	3,800	No.	7
2	100											2	2,000	See p. 531	See p. 537	2,400,000	10,000	Yes.	8
																		No.	9
																		No.	10
																		No.	11
1	6	6	1,780	5	980	1	500							See p. 531		6,032,690	16,539	No.	12
																		Yes.	13
																		No.	14
																		No.	15
		1	150	1	150											14,000	40	No.	16
		2	325	2	325											177,170	485	Yes.	17
																		No.	18
																		No.	19

¹ Power rented.² Exclusive of current purchased from stations not operated by electric railways, but includes 7 companies for part of year.³ For six and one-half months only.⁴ Estimated.⁵ For eight months only.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.		No.		No.	
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.
PENNSYLVANIA—Cont'd.																		
20	Westmoreland County Rail- way.	1	3	1,110	3	1,110												
21	Philadelphia and Easton.....	1	2	1,300			2	1,300										
22	Dallas Traction ²																	
23	Union Traction Street Rail- way. ³																	
24	Bauzer and Portland ⁴																	
25	Easton Transit.....	1	2	600	2	600												
26	Northampton Traction.....	1	2	1,200			2	1,200										
27	Whitehall street Railway.....																	
28	Pennsylvania and Maryland.....	1		475	1	475												
29	Erie Traction.....	1	2	1,000			2	1,000										
30	Conestoga and Erie.....	1	2	1,200			2	1,200										
31	Gettysburg Transit.....	1	3	450	3	450												
32	Schuykill Railway.....	2	5	1,700	4	1,100	1	600										
33	Pittsburg, McKeesport and Greensburg ⁵																	
34	Danville and Bloomsburg.....	1	2	420	2	420												
35	Hanover and Mosherstown ⁶																	
36	Central Pennsylvania Traction.....	1	3	3,000					3	3,000								
37	Lehigh Traction ⁷																	
38	Wilkes-Barre and Hazleton.....	1	3	1,200	3	1,200							2	4,000				
39	Hummelstown and Campbells- town.		1	250	1	250												
40	Honestead and Millin ⁸																	
41	Juniata Valley Electric.....																	
42	Indiana County Street Rail- way. ⁹																	
43	Jersey Shore Electric.....	1	2	900	2	900												
44	Jersey Shore and Antis Fort ¹⁰																	
45	Cambria Incline Plane.....	1	1	600			1	600										
46	Johnstown Passenger Railway.....	1	3	2,250			3	2,250										
47	West Chester, Kennett and Wilmington.....	1	2	1,000	2	1,000												
48	Kittanning and Leechburg.....	1													2	1,000		
49	Conestoga Traction ¹¹																	
50	Lafayette Street Railway ¹²																	
51	Lebanon Valley Railway.....	1	2	750	2	750												
52	Pittsburg and Allegheny Val- ley.....	1	2	450	2	450												
53	Valley Traction.....	1	2	250	2	250												
54	Lewistown and Rockville.....	1	3	900	3	900												
55	Susquehanna Traction.....	1	2	350	2	350												
56	Lykens and Williams Valley.....	1	2	250	2	250												
57	Oakdale and McDonald ¹³																	
58	Highland Grove Traction ¹⁴																	
59	Pittsburg and Westmoreland ¹⁵																	
60	Lancaster and Southern ¹⁶																	
61	Carlton Street Railway.....	3	2	1,000	1	300	1	700									2	400
62	Meadville Traction.....	1	2	250	2	250												
63	Meadville and Cambridge Springs ¹⁷																	
64	Lancaster and York Furnace ¹⁸																	
65	Lewisburg, Milton and Wat- ertown. ¹⁹																	
66	Montoursville Passenger Rail- way. ²⁰																	
67	Peoples Street Railway.....	1	2	450	2	450												
68	Bucks County Electric.....	1	4	1,000	4	1,000												
69	Schuykill Valley Traction.....	3	7	3,850	4	1,100	2	1,500	1	1,250								
70	Montgomery Traction.....	1	2	740	2	740												
71	Montgomery County Rapid Transit ²¹																	
72	Citizens Traction.....	1											4	2,075				
73	Northern Cambria Street Rail- way.....	1	2	736	2	736												
74	State Belt Electric Railway.....	1	2	675	2	675												
75	Philadelphia Rapid Transit.....	14	49	53,975	14	4,625	10	6,750	13	16,200	12	26,400	13	46,350				
76	Southwestern Street Railway.....	1	2	725	2	725												
77	Philadelphia, Bristol and Trenton.....	1	3	625	3	625												
78	Philadelphia and West Ches- ter.....	2	2	1,300			2	1,300					2	1,600				
79	Holmesburg, Tacony and Frankford.....	1	4	1,200	4	1,200												
80	Fairmount Park Transporta- tion.....	1	3	2,250			3	2,250										
81	Delaware County and Phila- delphia.....	1	2	700	2	700												
82	Philadelphia and Western.....	1											2	5,000				
83	Centre and Clearfield.....	1	4	1,800	4	1,800												
84	Montgomery and Chester ²²																	
85	Pittsburg Railways.....	10	35	44,860	8	3,010	11	8,300	11	15,050	5	18,000	6	29,400	1	40		
86	St. Clair Incline Plane.....	1	1	50	1	50												
87	Duquesne Incline Plane.....	1	2	200	2	200												
88	Monongahela Incline Plane.....	1	2	455	2	455												

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Estimated.⁴ Current also purchased.⁵ Current purchased.⁶ Estimated, and for two months only.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.			DIRECT-CURRENT DYNAMOS.								ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.	
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.			K. W.	Total for year.			Average per day.
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
											3	660	See p. 531	See p. 537	\$ 700,000	1,918	Yes...	20	
											2	800	See p. 531	See p. 537	\$ 1,404,350	4,004	No...	21	
																	No...	22	
																	No...	23	
														See p. 537			No...	24	
		2	450	2	450								See p. 531	See p. 537	1,952,000	2,608	No...	25	
		2	600	2	600										1,035,150	5,375	Yes...	26	
																	No...	27	
		1	300	1	300										\$ 47,040	771	No...	28	
		2	800	2	800										949,000	2,600	No...	29	
		2	800	2	800								See p. 531		1,061,780	4,553	No...	30	
		2	270	2	270										780,250	575	No...	31	
		6	1,525	6	1,525										2,308,250	6,050	Yes...	32	
																	No...	33	
		2	300	2	300										328,500	900	No...	34	
4	150	3	1,950			3	1,950						See p. 531		8,245,350	22,890	No...	35	
													See p. 531	See p. 537			No...	36	
		1	145	1	145								See p. 531	See p. 537	5,110,000	14,000	Yes...	37	
													See p. 531		(^b)		No...	38	
																	No...	39	
													See p. 532				No...	40	
																	No...	41	
																	No...	42	
		2	400	2	400										456,250	1,250	Yes...	43	
																	No...	44	
		3	1,500	3	1,500										3,785,780	10,372	No...	45	
		2	720	2	720										985,500	2,700	No...	46	
																	Yes...	47	
		1	300	1	300							1	300	See p. 532	See p. 537	401,500	1,100	No...	48
																	No...	49	
		2	550	2	550										635,830	1,742	No...	50	
		1	225	1	225							1	180	See p. 532		930,750	2,550	Yes...	51
																	No...	52	
		2	250	2	250										(^b)		No...	53	
		3	675	3	675										1,116,535	3,059	No...	54	
		2	200	2	200										1,856,310	5,094	No...	55	
		2	500	2	500								See p. 532		\$ 121,763	323	No...	56	
																	No...	57	
																	No...	58	
																	No...	59	
		4	722	4	722										1,148,100	3,140	No...	60	
		2	450	2	450										584,685	1,602	No...	61	
																	No...	62	
														See p. 538			No...	63	
														See p. 538			No...	64	
																	No...	65	
																	No...	66	
		2	350	2	350										345,718	945	Yes...	67	
		3	330	3	330							3	334	See p. 532	See p. 538	821,250	2,250	Yes...	68
		7	2,555	6	1,755	1	800						See p. 532	See p. 538	\$ 24,500,000	67,123	No...	69	
		2	500	2	500										550,425	1,525	Yes...	70	
																	No...	71	
		4	1,065	4	1,065							3	1,500	See p. 532	See p. 538	4,380,000	12,000	Yes...	72
		2	500	2	500										1,733,750	4,750	No...	73	
		2	500	2	500										719,005	1,970	Yes...	74	
10	1,000	40	36,125	21	6,075	16	12,060	12	18,000			12	31,000	See p. 532	See p. 538	216,802,356	593,979	No...	75
		2	600	2	600									See p. 532		730,000	2,000	Yes...	76
1	25	2	420	2	420										1,752,000	4,800	Yes...	77	
		4	2,000	4	2,000									See p. 532	See p. 538	5,403,355	14,804	No...	78
8	20	4	800	4	800										2,190,000	6,000	No...	79	
1	10	3	1,500	3	1,500									See p. 532		803,000	2,200	No...	80
		2	500	2	500										1,204,800	3,300	Yes...	81	
8	200											2	4,000	See p. 532	See p. 538	\$ 2,158,784	5,629	Yes...	82
		3	900	3	900							2	500	See p. 532		2,250,000	6,164	Yes...	83
55	1,300	26	17,975	14	8,275	9	7,200	3	4,500			9	24,800	See p. 532	See p. 538	\$ 104,307,065	286,775	No...	84
																	No...	85	
																	No...	86	
																	No...	87	
																	No...	88	

¹ For five months only.² Idle; power rented.³ Current furnished affiliated roads.⁴ For seven and one-half months only.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
PENNSYLVANIA—Cont'd.																		
89	West Penn Railway.....	1	3	4,000					3	4,000			4	8,800				
90	Pottstown and Reading.....		1	330	1	330												
91	Pottstown and Northern.....	1	2	600	2	600												
92	Pottsville Union Traction.....	1	3	1,500	3	1,500												
93	Jefferson Traction.....	2	6	2,005	5	1,405	1	600										
94	United Traction.....	2	8	4,350	4	950	3	2,150	1	1,250								
95	Neversink Mountain Railway ⁴																	
96	Mt. Penn Gravity Railroad ⁴																	
97	Allentown and Reading.....	2	4	1,800	3	1,000	1	800										
98	Oley Valley Railway ⁴																	
99	Waverly, Sayre and Athens ⁴																	
100	Scranton Railway.....	2	5	3,800	2	800	2	1,500	1	1,500			1	750				
101	Lackawanna and Wyoming Valley ⁴																	
102	Shamokin and Mount Carmel.....	1	3	900	3	900												
103	Shamokin and Edgewood ⁴																	
104	Stroudsburg Passenger Railway ⁴																	
105	Stroudsburg and Water Gap ⁴																	
106	Sinbury and Northumberland.....	1	1	150	1	150												
107	Eastern Pennsylvania Railways ⁴																	
108	Allegheny Valley Street Railway ⁴																	
109	Titusville Electric Traction...	1	2	850	1	250	1	600										
110	Warren Street Railway.....	1													3	900		
111	Warren and Jamestown.....	1													2	1,000		
112	Washington and Canonsburg.....	1	2	1,200			2	1,200										
113	Chambersburg, Greencastle and Waynesboro.....	1	3	880	3	880							1	250				
114	West Chester Street Railway.....	1	2	900	2	900												
115	Wilkes-Barre and Wyoming Valley.....	1	8	4,000	5	1,300	2	1,200	1	1,500								
116	Wilkes-Barre, Dallas and Harvey's Lake.....	1	2	900	2	900												
117	Vallianton Traction ⁴																	
118	South Side Passenger Railway ⁴																	
119	Williamsport Passenger Railway ⁴																	
120	East End Passenger Railway ⁴																	
121	Trenton, New Hope and Lambertville.....	1	1	800			1	800										
122	York Railways ⁴																	
RHODE ISLAND.																		
	Total for state.....	5	19	11,100	6	1,900	3	2,250	5	6,800	5	12,700	3	5,350				
1	Sea View Railroad.....	1	3	1,000	3	1,000												
2	Newport and Providence ⁴																	
3	Rhode Island Company.....	2	11	18,750			3	2,250	3	3,800	5	12,700	1	3,350				
4	New York, New Haven and Hartford.....	1	2	3,000					2	3,000			2	2,000				
5	Providence and Danielson.....	1	3	800	3	800												
6	Pawtucket Valley Street Railway ⁴																	
SOUTH CAROLINA.																		
	Total for state.....	8	19	6,950	16	4,700	3	2,250					2	4,000			6	8,040
1	Anderson Traction.....	1	1	200	1	200												
2	Augusta and Aiken.....	1	2	900	2	900												
3	Charleston Consolidated Railway, Gas and Electric.....	2	12	5,075	9	2,825	3	2,250										
4	Columbia Electric Street Railway, Light and Power.....	2											2	4,000			6	8,040
5	Greenville Traction.....	1	(^B)	(^B)														
6	Rock Hill Water, etc., Light and Railway. ¹²																	
7	Spartanburg Railway, Gas and Electric.....	1	4	775	4	775												
SOUTH DAKOTA.																		
	Total for state.....																	
1	Sioux Falls Traction ⁴																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current also purchased.⁴ Current purchased.⁵ For ten months only; current purchased for remainder of year.⁶ For six months only; current purchased for remainder of year.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
4	425	2	125	2	125							7	9,250	See p. 532	See p. 534	* 31,174,265 (⁵)	85,409	Yes...	59
		2	800	2	800													No...	90
		2	1,095	3	1,095													No...	91
		6	1,275	6	1,275									See p. 532		* 2,370,825	7,799	No...	92
		8	3,050	7	2,250	1	800							See p. 532		3,245,000	9,000	No...	93
																9,490,000	26,000	Yes...	94
		5	1,290	5	1,290									See p. 532	See p. 535	1,971,000	5,400	No...	96
														See p. 532	See p. 536			No...	97
1	40	6	3,130	5	2,100			1	1,050					See p. 532		* 12,745,352	34,920	No...	98
																		No...	99
		3	600	3	600									See p. 532		1,357,000	3,720	No...	102
																		No...	103
																		No...	104
		2	200	2	200											* 120,000	600	No...	105
															See p. 538			No...	106
															See p. 538			No...	107
		2	425	2	425											232,000	600	No...	109
2	906	3	550	3	550									See p. 532	See p. 538	1,051,200	2,880	No...	110
		2	880	2	880							2	600	See p. 532	See p. 539	1,228,500	3,366	No...	111
		2	500	2	500									See p. 532	See p. 538	* 1,142,470	3,122	No...	112
		2	880	2	880							4	675	See p. 532	See p. 538	1,668,050	4,570	Yes...	113
		7	2,600	6	1,600			1	1,000			1	80	See p. 532	See p. 538	* 803,000 10,502,000	2,200 28,770	No...	114
		2	400	2	400										See p. 538	310,250	850	Yes...	115
																		No...	116
																		No...	117
																		No...	118
																		No...	119
												1	500	See p. 532	See p. 538	776,545	2,133	No...	120
															See p. 538			Yes...	121
																		No...	122
2	185	15	13,500	7	2,400	4	3,300	2	2,800	2	5,000	6	7,300	See p. 532	See p. 538	* 57,769,664	158,276		
1	35	1	200	1	200							1	300	See p. 532	See p. 538	842,000	2,307	Yes...	1
		9	10,900	3	1,500	2	1,600	2	2,800	2	5,000	3	5,600	See p. 532	See p. 539	* 49,422,000	135,406	Yes...	2
1	150	2	1,700			2	1,700					2	1,600	See p. 532	See p. 538	5,843,850	16,011	No...	3
		3	700	3	700									See p. 532	See p. 538	1,450,854	4,553	No...	4
																		No...	5
																		No...	6
14	626	16	3,182	15	2,077	1	525					19	10,210	See p. 532	See p. 538	* 27,616,025	75,971		
		3	472	3	472							1	400	See p. 532	See p. 538	* 25,000	420	No...	1
		2	600	2	600									See p. 532	See p. 539	1,491,300	4,096	No...	2
12	546	5	1,350	5	825	1	525					6	1,375	See p. 532	See p. 538	5,439,328	14,802	Yes...	3
2	80											8	8,000	See p. 532	See p. 538	18,803,337	51,515	Yes...	4
		2	350	2	350									See p. 532		657,000	1,800	No...	5
		3	410	3	410							4	435			1,200,000	3,288	Yes...	6
																		No...	7
																		No...	

¹ Exclusive of current purchased from stations not operated by electric railways.² Exclusive of current purchased from stations not operated by electric railways, but includes 1 company for part of year.³ For two months only; current purchased for remainder of year.⁴ Power rented.⁵ Animal power.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
7	310	19	9,657	12	1,957	5	4,100	1	1,000	1	2,000	11	16,130	See p. 532		\$63,650,335	174,878	No.	1
		5	2,000	3	1,000	2	1,000									\$7,300,000	20,000	Yes.	2
		2	120	2	120							2	600	See p. 532		136,310	374	No.	3
		2	300	2	300											1,277,500	3,500	Yes.	4
7	310											4	3,800	See p. 532		12,077,068	33,061	No.	5
		1	52	1	52									See p. 532		(¹)		Yes.	6
		5	4,800	1	300	3	2,300			1	2,000			See p. 532		19,337,020	52,978	No.	7
		4	1,785	3	185			1	1,000			5	11,750	See p. 532		23,322,437	64,445	Yes.	8
20	627	29	6,260	27	4,960	2	1,300					20	6,340	See p. 532	See p. 538	\$34,294,488	94,412	No.	9
1	10	4	760	4	760									See p. 532		1,113,182	3,049	No.	1
		2	600	2	600											1,447,000	3,964	No.	2
																		No.	3
																		No.	4
		2	400	2	400											547,500	1,500	No.	5
		1	100	1	100											32,400	540	No.	6
11	435	1	200	1	200							6	1,900	See p. 532		6,850,000	18,800	Yes.	10
		6	925	6	925							4	924			1,719,150	4,710	Yes.	11
2	90	2	650	2	650							3	1,800	See p. 532	See p. 538	\$10,748,640	29,448	No.	12
3	80	2	650	2	650							4	1,125	See p. 532		2,523,282	6,913	Yes.	13
1	12	4	1,725	2	425	2	1,300					3	600	See p. 532		6,584,700	18,040	Yes.	14
																\$627,070	1,718	No.	15
																		No.	16
																		No.	17
																		No.	18
																		No.	19
		2	300	2	300									See p. 532		912,500	2,500	No.	20
		5	600	5	600											1,189,084	3,230	Yes.	21
																		No.	22
6	40	13	1,075	13	1,075							15	7,450	See p. 532	See p. 538	\$22,204,231	60,833	No.	23
		3	150	3	150											\$60,500	1,341	No.	1
6	40	10	925	10	925							15	7,450	See p. 532	See p. 538	\$21,714,731	59,492	Yes.	2
		12	3,375	12	3,375							4	1,500	See p. 532	See p. 538	\$4,133,180	11,329	No.	
														See p. 532	See p. 538			No.	1
																		No.	2
		2	400	2	400							1	300	See p. 532	See p. 538	405,300	1,279	Yes.	3
		2	1,000	2	1,000									See p. 532		365,000	1,000	No.	4
		2	875	2	875									See p. 532		54,000	150	No.	5
		2	400	2	400							3	1,200	See p. 532	See p. 538	2,920,000	8,000	Yes.	6
		1	200	1	200									See p. 532		(¹)		No.	7
		1	200	1	200									See p. 532		(¹)		No.	8
		2	300	2	300											228,680	900	No.	9
																		No.	10
23	634	78	19,626	69	12,826	9	6,800					37	27,130	See p. 532	See p. 538	\$84,730,913	232,102	No.	
		5	650	5	650									See p. 532		1,049,375	2,875	Yes.	1
1	100	5	424	5	424									See p. 532		563,460	1,626	No.	2
		2	300	2	300											(¹)		No.	3
3	75	2	430	2	430							5	2,400	See p. 532		\$5,519,400	15,121	Yes.	4
																		No.	5

¹ For two months only.² Estimated.³ Animal power.⁴ Gasoline motors.⁵ Power rented.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, number.	STEAM ENGINES.								STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹			
			Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
VIRGINIA—Continued.																		
7	Newport News and Old Point Railway and Electric.	1	3	1,965	3	15	1	750	1	1,200			1	2,250				
8	Norfolk City and Suburban ²																	
9	Norfolk and Southern	1	3	2,500	2	1,000			1	1,500								
10	Norfolk and Ocean View	1	2	900	1	300	1	600										
11	Norfolk and Atlantic Terminal	1	4	900	4	900												
12	Norfolk and Portsmouth Traction.	5	14	5,180	11	2,220	1	700	2	2,250			8	15,819	4	900		
13	Radford Water Power.	1															2	600
14	Richmond and Chesapeake Bay.																	
15	Virginia Passenger and Power.	1	9	5,600	4	1,350	5	4,250									13	12,925
16	Richmond Passenger and Power.	1	7	5,000	1	500	6	4,500										
17	Richmond Traction ³																	
18	Richmond and Petersburg Electric. ⁴																	
19	Roanoke Railway and Electric.	1	5	2,150	4	1,500	1	650										
20	Blue Ridge Light and Power.	1	2	1,000	1	400	1	600										
21	Tazewell Street Railway ⁵																	
22	Washington, Alexandria and Mt. Vernon.	1	1	1,000					1	1,000			1	1,000				
23	Great Falls and Old Dominion.	1											1	750				
WASHINGTON.																		
Total for state.		23	37	18,402	29	8,152	5	3,750	1	1,500	2	5,000	4	16,200			3	4,900
1	Grays Harbor Railway	2	3	1,000	3	1,000							1	800				
2	Whatcom County Railway	3	5	1,250	5	1,250											1	3,300
3	Puget Sound International Railway	1	2	1,500			2	1,500					1	1,000				
4	Olympia Light and Power.	1															2	1,600
5	Loyal Railway ¹																	
6	Seattle-Everett Interurban ²																	
7	Seattle Electric	14	20	9,952	18	4,952						2	5,000	2	14,700			
8	Seattle, Renton and Southern ³																	
9	Washington Water Power ⁴																	
10	Spokane and Inland Empire ⁵																	
11	Pacific Traction ⁶																	
12	Puget Sound Electric ⁷																	
13	Tacoma Railway and Power.	2	7	4,700	3	950	3	2,250	1	1,500								
14	Walla Walla Valley Traction ⁸																	
WEST VIRGINIA.																		
Total for state.		13	37	16,530	26	7,680	8	5,650	3	3,200			5	4,533	3	350		
1	Bluestone Traction	1	4	1,450	3	700	1	750										
2	Kanawha Valley Traction	1	2	1,000	2	1,000												
3	Fairmont and Clarksburg	1											4	4,000				
4	Camden Interstate Railway.	2	5	3,000			3	3,000										
5	Martinsburg Light and Power.	1	1	250	1	250									3	350		
6	Union Utility	1	4	1,200	4	1,200												
7	Sabroton Railway ¹																	
8	Newell Street Railway ²																	
9	Wetzel and Tyler Railway	1	1	250	1	250												
10	Parkersburg, Marietta and Interurban.	2	11	2,960	11	2,960							1	533				
11	Tri-State Traction ³																	
12	City Railway	1	1	350	1	350												
13	Wheeling Traction	1	4	3,500	1	300			3	3,200								
14	City and Elm Grove	1	4	2,000	2	700	2	1,300										
15	Pan Handle Traction ⁴																	
WISCONSIN.																		
Total for state.		19	54	48,903	23	8,905	15	9,550	8	10,450	8	22,000	10	9,650	1	2,000	26	3,460
1	Wisconsin Traction, Light, Heat and Power.	1	2	2,000					2	2,000							16	2,550
2	Ashland Light, Power and Street Railway.	1	2	200	2	200												
3	Beloit Traction ¹																	
4	Milwaukee Northern	1													1	2,000		
5	Chippewa Valley Railway, Light and Power.	2																
6	Eastern Wisconsin Railway and Light.	1	3	2,250	2	1,000			1	1,250								
7	Green Bay Traction.	1	2	1,600			2	1,600					1	800				
8	Janesville Street Railway ²																	
9	Kenosha Electric Railway ³																	
10	La Crosse City Railway	1	2	650	2	650												
11	La Crosse and Onalaska ⁴																	
12	Southern Wisconsin Railway ⁵																	

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.³ Current purchased.⁴ Current also purchased.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.		DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.			Total for year.	Average per day.		
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.								
12	145	2	825	2	825							4	2,800	See p. 532	See p. 538	8,746,120	23,962	Yes...	7
2	127	2	800	2	800							1	1,000	See p. 532	See p. 538	2,054,000	7,271	No...	8
		2	625	2	625											1,642,500	4,500	Yes...	9
		2	450	2	450											2,920,000	8,000	No...	10
		18	3,331	16	1,631	2	1,700					10	12,740			*21,510,000	58,932	Yes...	11
		2	500	2	500											767,900	2,104	Yes...	12
												2	1,500	See p. 532	See p. 538	(²)		No...	13
2	7	20	6,181	13	1,081	7	5,100					4	2,850	See p. 532		28,045,562	76,900	Yes...	14
		4	1,800	4	1,800							3	1,500	See p. 532		*3,462,500	9,760	Yes...	15
																		No...	16
																		No...	17
		7	865	7	865							3	800	See p. 533		3,102,500	8,500	Yes...	18
		1	400	1	400							3	540	See p. 533		657,000	1,800	Yes...	19
																		No...	20
		3	1,500	3	1,500							1	500		See p. 538	*2,190,000	6,000	Yes...	21
3	85	1	25	1	25							1	500	See p. 533	See p. 538	1,770,500	4,851	No...	22
9	2,835	44	7,835	42	5,085	2	1,700					19	21,294	See p. 533	See p. 538	*25,516,954	69,891		23
8	2,820	4	700	4	700							3	750			3,128,050	8,570	Yes...	1
1	35	4	685	4	685							6	2,084	See p. 533	See p. 538	4,805,714	13,166	Yes...	2
		1	500	1	500							2	1,250	See p. 533		4,062,375	11,130	Yes...	3
		1	500	1	500							1	500	See p. 533		2,767,430	7,582	Yes...	4
																		No...	5
		28	2,290	28	2,290							4	14,200	See p. 533	See p. 538	*10,153,295	27,800	Yes...	6
																		No...	7
																		No...	8
																		No...	9
																		No...	10
		6	2,700	4	1,000	2	1,700					3	2,500	See p. 533	See p. 538	*800,000	1,643	Yes...	11
																		No...	12
1	50	23	7,105	20	5,105	3	2,000					24	9,463	See p. 533	See p. 538	*39,858,619	100,166		13
		1	200	1	200							2	1,500			1,277,500	3,500	Yes...	14
		2	600	2	600							4	3,000	See p. 533	See p. 538	1,756,996	4,796	Yes...	15
												4	2,000	See p. 533	See p. 538	12,362,400	33,970	Yes...	16
		1	150	1	150							5	2,800	See p. 533	See p. 538	6,570,000	18,000	Yes...	17
1	50	2	400	2	400							3	200	See p. 533		438,000	1,200	Yes...	18
												2	300	See p. 533		1,175,463	3,212	Yes...	19
		1	300	1	300													No...	20
		7	1,350	7	1,350							5	1,270		See p. 538	1,095,000	3,000	Yes...	21
																2,250,000	6,164	No...	22
		1	330	1	330											(³)		No...	23
		4	1,975	3	1,175	1	800									8,212,500	22,500	Yes...	24
		4	1,900	2	600	2	1,200					3	473			4,730,760	12,934	Yes...	25
																		No...	26
6	278	83	22,482	76	11,382			3	3,100	4	8,000	28	695	See p. 533	See p. 538	*86,382,902	236,863		27
		2	1,000	2	1,000							2	1,000			2,340,015	6,411	Yes...	28
		2	120	2	120											438,000	1,200	No...	29
																		No...	30
2	150	1	50	1								1	1,000	See p. 533	See p. 538	*157,625	2,425	No...	31
												3	1,700	See p. 533	See p. 538	(²)		No...	32
		1	500	1	500											2,773,372	7,598	Yes...	33
1	50											2	1,000	See p. 533	See p. 538	2,032,800	5,599	Yes...	34
																		No...	35
		3	400	3	400											1,086,000	2,976	No...	36
																		No...	37
																		No...	38
																		No...	39
																		No...	40
																		No...	41
																		No...	42

¹ Exclusive of current purchased from stations not operated by electric railways.² Exclusive of current purchased from stations not operated by electric railways, but includes 2 companies for part of year.³ For two months only.

STREET AND ELECTRIC RAILWAYS.

TABLE 186.—POWER AND GENERATING PLANTS, AND

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Power houses, num- ber.	STEAM ENGINES.										STEAM TURBINES. ¹		GAS ENGINES. ¹		WATER WHEELS. ¹	
			Total.		50 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		No.	H. P.	No.	H. P.	No.	H. P.
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.						
WISCONSIN—Continued.																		
13	Manitowoc and Northern.....	1	2	600	2	600												
14	Merrill Railway and Lighting.....	1	1	200	1	200										5	500	
15	Milwaukee Electric Railway and Light	3	26	34,100	7	1,640	6	3,350	8	7,200	8	22,000	9	8,850				
16	Milwaukee Light, Heat and Traction.	2	6	2,850	4	1,550	2	1,300										
17	Winnebago Traction.....	1	3	1,800			3	1,800										
18	Sheboygan Light, Power and Railway.	1	4	2,400	2	900	2	1,500										
19	Wausau Electric Light and Railway.	1	1	165	1	165										1	210	
20	Wausau Street Railroad.....	1														4	200	
OUTLYING DISTRICTS..			3	10	3,045	10	3,045						1	750				
HAWAII.																		
	Total for territory.....	1	3	1,020	3	1,020												
1	Honolulu Rapid Transit and Land.	1	3	1,020	3	1,020												
PORTO RICO.																		
	Total.....	2	7	2,025	7	2,025							1	750				
1	Tramway Stock Co.....																	
2	Ponce Railway and Light.....	1	4	1,025	4	1,025												
3	San Juan Light and Transit...	1	3	1,000	3	1,000							1	750				

¹ For details, see Supplementary Table 1.² For details, see Supplementary Table 2.

OUTPUT OF STATIONS, BY COMPANIES: 1907—Continued.

AUXILIARY ENGINES.			DIRECT-CURRENT DYNAMOS.										ALTERNATING-CURRENT DYNAMOS. ¹		Auxiliary equipment, transformers, storage batteries, rotaries, etc.	Substations and their equipment.	OUTPUT OF STATIONS (KILOWATT HOURS).		Generate electric current for sale.	Number.
No.	H. P.	Total.		500 K. W. or under.		Over 500 K. W. and under 1,000 K. W.		1,000 K. W. and under 2,000 K. W.		2,000 K. W. and over.		No.	K. W.	Total for year.			Average per day.			
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.									
		2	400	2	400											401,500	1,100	Yes...	13	
		6	498	6	498											720,875	1,975	Yes...	14	
		49	15,914	42	4,814			3	3,100	4	8,000	9	12,500	See p. 533	See p. 538	63,758,910	174,682	Yes...	15	
		9	2,150	9	2,150							2	1,000	See p. 533	See p. 538	7,979,185	21,861	Yes...	16	
2	18	2	450	2	450							2	800	See p. 533	See p. 538	1,512,560	4,144	No....	17	
1	60	3	650	3	650							2	1,000	See p. 533	See p. 538	2,803,200	7,600	Yes...	18	
		1	150	1	150							2	175			255,500	700	Yes...	19	
		2	200	2	200									See p. 533		133,264	622	No....	20	
6	137	8	1,538	8	1,538							6	1,370	See p. 533		5,473,303	14,994			
1	37	4	938	4	938									See p. 533		2,319,465	6,355			
1	37	4	938	4	938									See p. 533		2,319,465	6,355	No....	1	
5	100	4	600	4	600							6	1,370	See p. 533		3,153,838	8,639			
2	91	3	350	3	350							3	420	See p. 533		1,312,601	3,595	No....	2	
3	60	1	250	1	250							3	950	See p. 533		1,841,337	5,044	Yes...	3	

¹ For seven months only.² Animal power.

STREET AND ELECTRIC RAILWAYS.

TABLE 187.—PASSENGERS, CAR MILEAGE,

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
UNITED STATES.....		19,533,080,766	17,441,114,508	1,965,658,101	90,308,157	7,376	1216,522
ALABAMA.							
Total for state.....		62,923,421	62,197,482	8,842,346	1,883,593	63	178,967
1	Anniston Electric and Gas.....	1,422,734	1,422,734				129,339
2	Birmingham Railway, Light and Power.....	35,900,401	28,594,557	5,528,028	1,477,816	24	214,997
3	Alabama City, Gadsden and Attalla.....	1,224,296	1,224,296				153,037
4	Huntsville Railway, Light and Power.....	552,760	552,760				119,645
5	Mobile Light and Railroad.....	14,121,247	11,895,080	1,938,404	287,063	30	204,428
6	Montgomery Traction.....	6,342,933	5,141,760	1,107,221	93,052	7	135,488
7	North Alabama Traction.....	1,023,844	822,994	190,050	10,800	1	113,673
8	Selma Street and Suburban.....	891,222	798,707	78,553	13,962	1	97,881
9	Sheffield Co.....	1,553,984	1,553,984				124,319
10	Birmingham and Gulf Railway and Navigation.....	190,000	190,000				17,273
ARIZONA.							
Total for territory.....		2,068,861	1,901,861	128,000	29,000	7	61,840
1	Douglas Street Railway.....	437,000	340,000	85,000	12,000	3	34,000
2	Phoenix Railway.....	940,780	908,780	25,000	7,000	3	64,911
3	Prescott and Mt. Union.....	108,053	108,053				48,024
4	Tucson Rapid Transit.....	573,048	545,048	18,000	10,000	1	121,122
ARKANSAS.							
Total for state.....		20,916,339	17,145,267	3,078,670	692,282	21	196,194
1	Citizens Electric.....	333,000	300,000	30,000	3,000	1	100,000
2	Fort Smith Light and Traction.....	3,297,339	2,635,180	520,348	131,811	5	150,927
3	Hot Springs Street Railway.....	3,143,876	2,854,800	215,803	73,271	4	218,591
4	Little Rock Railway and Electric.....	10,540,911	8,555,383	1,538,225	446,453	7	266,108
5	Citizens Light and Transit.....	2,455,476	1,702,978	680,498	12,000	3	201,493
6	Sulphur Rock Railway.....	1,300	1,300				1,327
7	Texarkana Gas and Electric.....	927,439	807,808	93,794	25,747	1	85,492
8	Walnut Ridge and Hoyle.....	227,848	227,848				89,704
CALIFORNIA.							
Total for state.....		1441,895,305	127,977,151	109,230,255	4,687,709	471	162,800
1	Santa Catalina Island Co.....	44,025	42,500		2,125		236,111
2	Power, Transit and Light.....	830,094	847,154	71,721	11,219	1	108,609
3	Northern Electric.....	1,325,851	1,275,053	23,725	26,645	1	11,333
4	Coronado Railroad.....	704,081	656,077	15,880	32,086	1	219,424
5	Humboldt Transit.....	2,165,736	1,601,128	304,608		7	127,397
6	Fresno Traction.....	2,689,267	1,980,027	602,471	16,769	4	165,970
7	Nevada County Traction.....	604,000	604,000				109,082
8	Los Angeles Electric Incline.....	1,104,125	1,065,000		9,125		7,821,429
9	Observation Tower Co.....	171,200	168,000		3,500		2,400,000
10	Los Angeles Railway.....	88,082,749	69,162,680	18,940,846	579,023	57	324,815
11	Pacific Electric.....	32,003,008	27,227,018	4,715,710	900,280	60	59,437
12	Los Angeles Pacific.....	12,432,908	10,941,608	983,081	508,059	6	63,272
13	Los Angeles Interurban.....	14,014,457	12,010,734	1,542,431	461,392	18	138,430
14	Monterey and Pacific Grove.....	847,037	831,937	16,000		1	127,900
15	Vallejo, Benicia and Suisun Valley.....	350,913	347,150		3,754		20,903
16	Oakland Traction.....	72,139,935	52,551,237	19,588,698		54	316,383
17	San Francisco, Oakland and San Jose.....	8,398,000	8,396,000				376,194
18	Ontario and San Antonio Heights.....	231,737	232,737		1,000		28,383
19	Santa Clara Interurban.....	146,132	146,132			1	55,144
20	El Paso de Robles Street.....	3,756	3,756				1,502
21	Petaluma and Santa Rosa.....	620,219	616,063		3,556		16,867
22	Los Angeles and Redondo.....	1,807,076	1,723,571		83,505		20,438
23	East Shore and Suburban.....	2,440,170	2,190,000	237,250	2,920	4	149,000
24	Riverside and Arlington.....	929,736	872,814	38,583	18,329	2	70,332
25	Sacramento Electric, Gas and Railway.....	9,645,880	8,254,497	1,209,440	184,943	22	273,147
26	San Bernardino Valley Traction.....	1,870,202	1,804,149	58,680	7,364	2	42,431
27	San Diego Electric.....	7,201,032	6,080,876	908,655	202,091	11	173,303
28	South Park and East Side.....	377,206	353,878		23,828		99,293
29	Geary Street, Park and Ocean.....	3,068,613	3,063,813		4,800		442,100
30	California Street Cable.....	5,174,180	4,459,680	714,500		3	410,652
31	Presidio and Ferries.....	1,199,052	700,263	499,389		2	77,721
32	United Railroads of San Francisco.....	132,431,145	94,505,079	36,364,280	1,471,777	187	350,240
33	San Jose Railway.....	2,807,121	2,526,074	357,547	13,500	7	164,458
34	San Jose and Santa Clara County.....	3,768,319	3,226,152	527,567	14,000	5	91,678
35	San Jose-Los Gatos Interurban.....	1,315,420	913,074	402,246		2	22,776
36	Santa Barbara Consolidated.....	1,592,230	1,207,164	80,066	5,000	3	160,955
37	Union Traction.....	2,192,171	1,745,830	436,832		2	118,088
38	South San Francisco Railroad and Power.....	353,196	353,196				80,272
39	Stockton Electric.....	2,635,514	2,379,202	256,312		3	183,016
40	Central California Traction.....	801,000	718,000	47,000	36,000	5	26,224
41	Pacific Railroad and Steamship.....	113,000	3,000				583
COLORADO.							
Total for state.....		93,083,653	73,438,408	18,762,433	1,802,752	85	231,460
1	Boulder Electric Light and Power.....	487,462	487,462				91,974
2	Colorado Springs and Interurban.....	9,989,724	8,427,502	1,231,254	330,968	8	211,534

* Includes 66 companies operating part of year.

† Fare passengers reported for 944 companies only (see Illinois), representing 34,386.51 miles of track operated.

‡ For 734 companies only and includes 50 companies operating part of year.

§ Passenger-car hours reported for 733 companies only, representing 6,461,840,576 fare passengers carried.

|| Passenger-car hours reported for 3 companies only, representing 1,703,806 fare passengers carried.

¶ Passenger-car hours reported for 3 companies only, representing 16,036,189 fare passengers carried.

GENERAL TABLES.

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CAR HOURS, ETC., BY COMPANIES: 1907.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Passenger cars owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
11,617,731,300	1,583,831,190	33,900,101	4.70	151,338,944	148,678,052	2,660,892	43.06		467	
11,785,298	11,554,660	230,618	4.52	1,300,911	1,321,734	39,177	39.49		15	
283,554	280,294	3,260	3.74	49,284	49,284		28.57	Yes	1	1
5,902,980	5,645,382	157,498	5.07	634,621	603,474	31,147	47.38	Yes	2	2
180,252	181,452	7,900	6.75	18,923	18,145	780	67.47	Yes	3	3
210,770	210,770		2.62	26,280	26,280		21.03	No	1	4
2,726,267	2,720,187	6,080	4.37	308,659	307,005	1,654	38.67	Yes	1	5
1,575,153	1,575,153		3.26	209,659	209,659		24.55	No	3	6
293,816	293,816		2.80	36,727	36,727		22.41	No	2	7
234,257	234,257		3.41	35,040	35,040		22.79	No	2	8
281,349	275,369	5,980	5.64	29,416	28,220	1,196	55.07	Yes	2	9
88,000	88,000	50,000	5.00	12,500	7,500	5,000	25.33	Yes	1	10
918,054	918,054		2.07	90,135	90,135		19.90		3	
304,200	304,200		.86	32,850	32,850		10.35	No	1	1
329,500	329,500		2.76	37,230	37,230		24.41	No	1	2
35,040	35,040		3.08					No	3	3
159,314	159,314		3.42	20,075	20,075		27.15	No	1	4
4,331,294	4,329,034	2,260	2.96	442,725	439,355	3,370	36.50		6	
197,000	197,000		1.52					No	1	1
858,493	858,493		3.07	73,210	70,080	3,130	37.60	No	2	2
691,766	691,766		4.13	83,398	83,398		34.24	No	1	3
1,749,002	1,749,002		4.80	206,440	206,440		41.44	No	1	4
529,816	529,516	300	3.33	71,677	71,437	240	24.68	No	1	5
4,380	2,920	1,460	.45					Yes	1	6
233,607	233,107	500	2.47					No	1	7
67,230	67,230		3.39	8,030	8,030		28.37	No	1	8
74,785,472	71,219,670	3,565,802	4.61	7,764,611	7,642,355	122,156	40.72		15	
2,130	2,130		19.95					No	1	1
208,050	208,050		4.07	37,740	37,740		30.54	No	1	2
1,002,586	782,619	219,969	1.63	78,541	49,073	29,468	25.99	Yes	1	3
35,800	35,800		18.33					No	1	4
582,418	582,418		2.95	65,145	65,145		25.50	No	1	5
634,290	634,290		3.12	66,272	66,272		29.88	No	1	6
70,665	70,665		8.56	7,180	7,180		44.25	No	1	7
15,425	15,425		70.99	12,410	12,410		88.24	No	1	8
7,300	7,300		23.01	12,400	12,400		13.56	No	1	9
15,065,011	15,065,011		4.59	1,097,557	1,097,557		40.74	Yes	10	10
11,731,543	10,223,032	1,508,511	2.66	859,770	859,770		31.67	Yes	11	11
5,782,592	4,738,994	1,043,598	2.31	891,300	891,300		18.50	Yes	12	12
2,556,826	3,421,953	124,873	3.51	262,736	262,736		33.11	Yes	13	13
170,000	170,000		4.89	23,360	23,360		35.61	No	1	14
165,895	109,014	56,881	3.18	16,419	13,178	3,241	26.35	No	1	15
9,948,958	9,957,928	81,030	5.33	1,156,198	1,134,298	21,900	46.33	Yes	3	16
1,618,394	1,607,644	10,750	6.22	77,755	74,105	3,650	112.31	No	1	17
114,975	114,975		2.02	10,930	10,930		21.25	Yes	1	18
93,734	93,734	100	1.56	10,444	10,444		13.99	No	1	19
2,000	2,000		1.25	400	400		9.39	No	1	20
512,741	304,525	208,216	2.02	24,400	18,290	6,110	33.72	No	1	21
894,636	744,636	150,000	2.31	53,563	53,563		32.18	Yes	1	22
558,600	558,600	000	3.92	58,400	58,400		37.50	Yes	1	23
377,006	378,089	917	2.32	33,390	33,390		26.14	Yes	1	24
1,803,742	1,803,742		4.58	234,829	234,829		35.15	No	1	25
670,500	662,442	8,058	2.72	84,550	84,550	1,800	22.95	Yes	2	26
1,054,317	1,048,817	5,500	2.81					No	1	27
105,579	105,579		3.35	12,912	12,912		27.37	No	1	28
402,500	402,500		7.61					No	1	29
403,529	403,529		11.05	71,410	71,410		62.45	No	1	30
104,520	104,520		6.70					No	1	31
12,733,829	12,670,482	63,347	7.47	1,862,302	1,840,767	21,535	51.14	No	1	32
743,985	742,496	1,500	3.40					No	1	33
746,029	743,529	2,500	4.34	95,124	95,124		23.92	No	1	34
594,868	547,433	47,435	1.67					No	1	35
265,147	264,224	923	4.57	38,400	35,000	3,400	34.40	Yes	1	36
482,600	479,068	3,532	3.64	62,334	62,034	300	28.14	No	1	37
235,160	235,160		1.50					No	1	38
780,000	780,000		3.06					No	1	39
536,000	508,000	27,000	1.41	63,720	44,570	19,150	16.11	No	1	40
11,400	11,400		7.00					No	1	41
14,500,836	14,207,796	293,040	5.14	1,294,187	1,262,884	31,303	40.72		3	
131,038	131,038		3.72					No	1	1
1,646,253	1,640,253		5.12					No	1	2

1 Includes 1 company operating part of year.

2 Passenger-car hours reported for 31 companies only, representing 311,200,076 fare passengers carried.

3 Not reported.

4 Includes free passengers.

5 For one month only.

6 Passenger-car hours reported for 8 companies only, representing 62,793,479 fare passengers carried.

STREET AND ELECTRIC RAILWAYS.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
COLORADO—Continued.							
3	Colorado Springs and Cripple Creek.....	1,351,832	1,290,032	.....	61,800	.....	70,034
4	Denver City Tramway.....	72,506,532	55,035,007	16,519,597	1,041,808	10	319,414
5	Denver and Inter-Mountain.....	297,790	293,300	.....	6,290	.....	65,061
6	Denver and Northwestern.....	251,777	249,818	.....	20,759	.....	26,957
7	Durango Railway and Realty.....	254,066	254,066	.....	.....	.....	106,555
8	Denver and South Platte.....	97,502	84,004	.....	13,498	.....	19,302
9	Manitou Electric Railway and Casino.....	121,243	121,230	.....	3,000	.....	166,073
10	Pueblo and Suburban Traction and Lighting.....	7,018,065	6,090,264	609,582	318,799	9	208,072
11	Trinidad Electric.....	662,000	660,000	2,000	60,000	2	45,977
CONNECTICUT.							
Total for state.....		1,146,159,623	122,553,772	23,457,233	148,619	135	159,899
1	Bristol and Plainville Tramway.....	1,810,017	1,704,792	114,825	.....	2	124,075
2	Danbury and Bethel Street Railway.....	2,938,051	2,565,751	654,048	18,234	2	152,208
3	Hartford and Springfield Street Railway.....	3,527,281	3,311,564	114,651	101,036	2	68,847
4	Groton and Stonington Street Railway.....	2,143,901	2,114,515	.....	29,348	.....	102,148
5	Farmington Street Railway.....	426,780	426,580	.....	.....	.....	28,250
6	New York, New Haven and Hartford Railroad.....	133,829,036	111,255,367	22,573,669	.....	129	178,744
7	New London and East Lyme Street Railway.....	826,465	826,465	.....	.....	.....	76,182
8	Norwich and Westerly Railway.....	1,359,217	1,359,217	.....	.....	.....	14,874
9	New York, New Haven and Hartford Railroad (New Canaan branch).....	290,523	290,523	.....	.....	.....	29,371
DELAWARE.							
Total for state.....		119,282,805	15,723,757	3,237,211	331,837	25	163,900
1	Odessa and Middletown Railway.....	45,944	5,800	.....	84	.....	1,469
2	Peoples Railway.....	4,446,754	3,942,152	418,121	85,761	7	118,125
3	Wilmington City Railway.....	13,888,419	10,856,422	2,800,090	232,007	18	240,026
4	Wilmington, New Castle and Southern Railway.....	941,888	918,803	.....	23,085	.....	68,312
DISTRICT OF COLUMBIA.							
Total for district.....		120,400,524	91,569,056	38,440,924	481,544	68	520,190
1	Anacostia and Potomac River.....	13,417,476	9,359,228	3,978,897	79,941	13	366,741
2	Bridlewood Railway.....	3,068,500	1,045,791	1,306,000	6,709	2	140,062
3	Georgetown and Fennelltown.....	1,703,886	1,131,520	581,001	10,765	2	127,904
4	Capital Traction.....	56,299,435	40,867,990	15,311,445	.....	18	912,000
5	Washington Railway and Electric.....	42,918,642	28,496,833	14,122,067	369,012	21	498,721
6	City and Suburban of Washington.....	13,082,515	9,927,004	3,079,874	75,037	12	299,013
FLORIDA.							
Total for state.....		422,215,334	19,889,055	3,115,967	210,292	32	159,725
1	Amelia Beach Co.....	488,336	75,845	.....	12,491	.....	34,475
2	Fort Meade Street Railway.....	7,000	7,900	.....	.....	.....	6,091
3	Jacksonville Electric.....	8,017,253	6,824,126	1,075,509	117,528	7	306,702
4	North Jacksonville Street Railway, Town and Improvement.....	361,270	346,950	14,320	.....	1	53,377
5	Key West Electric.....	1,484,394	1,271,854	209,240	3,501	1	259,040
6	Panacea Electric.....	2,047,794	2,567,200	340,063	40,322	4	125,005
7	St. Johns Light and Power.....	10,760	29,780	.....	.....	.....	4,218
8	St. Petersburg and Gulf.....	253,378	242,428	.....	10,950	.....	26,208
9	Tampa and Sulphur Springs Traction.....	615,245	531,945	58,000	25,000	1	64,752
10	Tampa Electric.....	8,409,775	6,991,019	1,418,756	.....	18	192,484
GEORGIA.							
Total for state.....		71,820,430	50,700,459	10,154,556	1,065,424	108	170,973
1	Athens Electric Railway.....	1,069,885	953,553	96,362	19,970	2	145,581
2	Georgia Railway and Electric.....	44,688,640	36,386,800	7,481,772	821,477	60	224,463
3	Atlanta Northern Railway.....	2,483,708	2,472,800	.....	10,908	.....	130,079
4	Augusta Railway and Electric.....	4,829,451	3,847,445	.....	982,006	3	129,610
5	Columbus Railroad.....	2,938,500	2,294,529	697,480	46,530	1	111,477
6	Covington and Oxford.....	44,510	44,510	.....	.....	.....	19,786
7	Gainesville Electric Railway.....	453,000	399,101	34,721	19,184	1	66,006
8	Macon Railway and Light.....	5,472,436	4,590,001	963,435	.....	1	138,017
9	Rome Railway and Light.....	1,299,568	1,074,282	199,937	65,349	1	122,078
10	Savannah Electric.....	9,325,180	7,404,340	920,849	.....	30	129,460
11	Valdosta Street Railway.....	200,000	200,000	.....	.....	.....	56,034
12	Washington Street Railway.....	14,899	14,899	.....	.....	.....	22,900
IDAHO.							
Total for state.....		1,507,335	1,326,904	157,246	23,125	7	29,005
1	Boise Railroad.....	1,350,769	1,172,779	156,104	21,876	6	120,400
2	Boise and Interurban Railway.....	156,576	154,185	1,142	1,240	1	4,400

¹ Includes 1 company operating part of year.

² Passenger-car hours reported for 8 companies only, representing 11,298,405 fare passengers carried.

³ For seven and one-half months only.

⁴ For three months only.

⁵ Passenger-car hours reported for 5 companies only, representing 50,561,070 fare passengers carried.

⁶ Includes 3 companies operating part of year.

⁷ Includes 2 companies operating part of year.

GENERAL TABLES.

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HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
321,954	321,954		4.01					No.		3
10,519,292	10,440,140	79,152	5.27	1,002,103	1,004,180	7,914	50.76	Yes.		4
83,000	83,000		4.35	9,125	9,125		38.50	No.		5
489,238	273,340	215,898	2.59	37,911	16,222	21,589	43.57	No.		6
115,000	115,000		2.21					No.		7
21,543	21,543		3.90					No.		8
5,830	5,830		20.79					No.		9
1,149,700	1,149,700		5.30	129,348	129,348		47.06	No.		10
114,000	110,000	4,000	5.45	25,800	24,000	1,800	25.00	No.		11
120,658,982	25,577,625	1,061,357	4.79	1248,954	1243,731	5,223	146.30			16
353,114	353,114		4.83	45,059	45,059		37.83	Yes.		1
432,428	431,428	1,000	5.25	48,045	47,936	109	47.27	No.		2
836,181	828,781	7,300	4.00	63,624	62,838	786	52.70	Yes.		3
428,968	420,824	8,144	5.02	33,931	32,950	981	64.17	No.		4
214,380	198,760	15,620	2.15	18,200	16,000	2,140	26.56	Yes.		5
23,821,871	22,783,174	1,038,697	4.84					Yes.		14
201,854	201,854		4.24	17,032	17,032		50.23	No.		6
1245,562	1244,962	10,000	1.53	16,035	15,136	1,302	23.73	Yes.		7
124,744	124,725	19	2.09	6,725	6,720	5	38.77	Yes.		8
14,013,211	3,991,161	22,050	3.94	1480,797	486,197	3,600	32.34			2
8,280	8,280		.71	1,380	1,380		4.25	Yes.		1
1,506,940	1,506,940		2.02	155,125	155,125		25.42	No.		2
2,136,491	2,136,491		5.08	282,932	282,932		38.37	No.		3
361,500	339,450	22,050	2.71	50,360	46,700	3,600	19.65	No.		4
19,365,292	19,377,792	7,500	4.73	1,008,718	1,008,718		47.33			1
1,086,872	1,086,872		5.55	223,506	223,506		41.86	Yes.		1
488,237	488,237		2.47	58,229	58,229		29.12	Yes.		2
305,806	305,806		3.63	30,949	30,949		33.91	Yes.		3
10,687,345	10,659,895	7,500	2.84					Yes.		4
4,452,591	4,452,591		6.40	550,173	550,173		51.78	Yes.		5
1,764,391	1,764,391		5.63	205,771	205,771		48.23	Yes.		6
4,388,974	4,310,384	78,590	4.38	1517,065	1408,750	18,315	36.81			11
9,600	9,600		7.09	2,400	2,400		31.60	No.		1
4,140	2,375	1,765	2.07	2,900	1,400	1,500	5.41	Yes.		2
1,279,093	1,272,093	6,000	5.36	154,540	152,940	1,600	44.62	Yes.		3
191,917	191,917		1.81	26,827	26,827		12.93	No.		4
280,179	280,179		4.80	31,175	31,175		40.80	No.		5
805,071	785,241	19,830	3.27	93,236	89,931	3,305	28.55	Yes.		6
106,300	6,300		4.73	14,100	2,100		14.18	No.		7
86,570	86,570		2.90	14,262	11,882	2,400	20.44	Yes.		8
244,800	244,800		2.17					No.		9
1,491,304	1,453,309	37,995	4.81	180,565	180,055	9,510	38.83	Yes.		10
14,000,261	14,468,830	111,431	4.12	1,466,796	1,472,260	14,536	36.70			11
268,433	267,433	1,000	3.57					Yes.		1
8,684,254	8,632,641	31,613	4.21	985,377	991,308	4,000	38.70	Yes.		2
365,148	328,475	36,672	7.53	24,057	19,778	4,279	125.03	No.		3
967,771	907,771		4.02	95,445	95,445		40.31	No.		4
707,023	705,223	1,800	3.40	37,401	37,101	300	27.49	No.		5
15,750	10,500	5,250	4.24	4,000	3,000	1,000	14.84	Yes.		6
106,800	106,800		3.74	14,407	14,407		27.70	No.		7
1,128,843	1,128,843		3.99					No.		8
296,748	296,748		3.62	29,420	30,420		27.25	No.		9
1,989,411	1,950,008	39,403	3.79	222,302	219,276	3,026	33.77	Yes.		10
75,000	75,000		2.67					No.		11
5,080	3,387	1,693	4.40	3,787	2,325	1,262	5.90	Yes.		12
1365,965	378,583	7,380	3.51	19,889	11,650	1,230	17.61			2
270,640	270,640		4.33					No.		1
115,325	107,945	7,380	1.43	10,889	8,659	1,230	17.81	No.		2

* Passenger-car hours reported for 9 companies only, representing 18,357,110 fare passengers carried.

† For seven months only.

‡ For five months only.

§ Passenger-car hours reported for 9 companies only, representing 54,037,305 fare passengers carried.

|| Included in free passengers.

¶ Passenger-car hours reported for 1 company only, representing 154,185 fare passengers carried.

STREET AND ELECTRIC RAILWAYS.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
ILLINOIS.							
	Total for state.....	1,993,589,254	1,703,403,137	283,335,431	6,700,685	828	*254,919
1	Alton, Granite and St. Louis.....	9,209,907	8,533,787	666,200	10,000	13	113,814
2	Alton, Jacksonville and Peoria.....	129,304	127,350		1,954		23,155
3	Fruit Growers Refrigerating and Power.....	234,887	234,887				52,197
4	Aurora, DeKalb and Rockford.....	18,000	18,000				629
5	Belvidere City Railway.....	95,314	95,314				25,417
6	Bloomington and Normal.....	4,459,776	3,475,891	880,980	92,935	1	189,938
7	Peoria, Bloomington and Champaign.....	361,983	331,019		30,964		8,372
8	Calumet Electric and Traction.....	1,531,939	1,531,939	(*)		1	153,194
9	Illinois Central Electric Railway.....	41,140	41,140				7,020
10	Centralia and Central City.....	353,396	348,586		4,800		116,195
11	Urbana and Champaign.....	2,081,305	2,018,799		62,506		252,350
12	St. Louis, Decatur and Champaign.....	341,676	323,205		18,470		6,023
13	Danville, Urbana and Champaign.....	3,036,800	2,951,350		75,450		42,245
14	Chicago City Railway.....	289,593,521	162,622,150	97,171,371		100	696,492
15	Chicago Union Traction.....	249,157,191	209,222,415	137,412,191	2,522,555	500	640,333
16	Chicago Consolidated Traction.....	59,913,785	39,438,742	20,102,263	372,740	75	181,846
17	Calumet Electric Street Railway.....	14,302,186	10,598,722	3,636,924	78,540	20	137,472
18	Chicago Electric Traction.....	3,297,299	2,896,257	303,012	108,000	3	85,392
19	Southern Street Railway.....	6,754,537	3,997,408	2,752,524	4,605	16	161,511
20	General Electric Railway.....	2,000	2,000				667
21	Suburban Railroad.....	1,787,394	1,301,744	485,650		3	39,091
22	Northwestern Elevated Railroad.....	31,022,575	31,022,575				1,021,687
23	South Side Elevated Railroad.....	35,034,132	35,034,132				896,457
24	Metropolitan West Side Elevated.....	55,207,152	54,280,888		926,264		1,014,217
25	South Chicago City Railway.....	7,229,823	6,494,050	735,773		5	187,473
26	Chicago and Oak Park Elevated Railroad.....	17,257,450	16,597,430	660,020	307,541	1	722,885
27	Chicago and Milwaukee.....	5,432,527	4,944,414	380,572	286,165	5	37,215
28	Chicago and Joliet.....	7,271,924	5,994,176	977,643	286,503	5	72,311
29	Danville Street Railway and Light.....	4,447,402	3,902,649	398,581	156,172	5	198,406
30	Decatur Railway and Light.....	3,980,780	3,083,645	806,623	90,512	3	237,203
31	Illinois Central Traction.....	871,163	826,554		45,109		18,166
32	Chicago, Bloomington and Decatur.....	618,723	589,724		29,999		11,869
33	DeKalb-Sycamore and Interurban.....	291,670	274,416	6,504	10,750	1	35,047
34	Sterling, Dixon and Eastern.....	629,337	597,632	22,640	9,045	2	33,785
35	St. Louis and Belleville.....	(*)					
36	East St. Louis and Suburban.....	33,945,263	28,177,501	5,087,762	50,000	12	253,235
37	Elgin and Belvidere.....	369,913	369,913				10,074
38	Freeport Railway, Light and Power.....	702,140	535,015	114,353	52,781	2	62,943
39	Galesburg Railway and Light.....	2,857,249	2,426,846	300,965	66,438	2	119,844
40	Peoples Traction.....	221,613	219,788		1,825		15,099
41	Citizens Railway.....	900,295	53,620	6,214	571	1	10,175
42	Keokuk and Western Illinois.....	244,801	178,601	64,000	2,000	1	21,110
43	Chicago, Harvard and Geneva Lake.....	109,422	109,422				9,435
44	Chicago and Southern Traction.....	1,007,685	947,685		60,000		22,257
45	Sangamon Valley Railway.....	19,16,965	16,965				11,243
46	St. Louis and North Eastern.....	1,294,350	1,236,713		37,637		19,448
47	Jacksonville Railway and Light.....	1,333,862	1,092,379	219,785	21,698	1	156,054
48	Joliet, Plainfield and Aurora.....	361,942	353,153	17,753	10,459	2	15,202
49	Kankakee Electric Railway.....	1,291,943	870,638	348,255	73,000	1	123,876
50	North Kankakee Electric Light and Railway.....	363,310	545,060		18,250		74,493
51	Galesburg and Keokuk.....	1,367,274	1,037,274	250,000	100,000	1	28,423
52	Illinois Valley Railway.....	2,614,928	2,329,188	29,878	156,892	1	23,810
53	Lincoln Railway and Light.....	1,207,688	292,394	5,000	500	1	23,810
54	Coal Belt Electric Railway.....	1,006,632	967,111		39,521		37,946
55	Mattoon City Railway.....	500,000	500,000				34,493
56	Moline, East Moline and Watertown.....	1,521,359	1,406,857	34,815	19,697	1	186,801
57	Rock Island Southern Railroad.....	348,377	344,777		3,600		17,239
58	Murphysboro Street Railway.....	22,256	22,256				14,359
59	Northern Illinois Light and Traction.....	434,994	415,994	15,000	4,000	2	55,009
60	Paris Traction.....	10,278,980	278,980				69,745
61	Peoria Railway.....	16,298,524	12,377,164	3,816,021	103,339	18	235,800
62	Peoria Railway Terminal.....	747,943	709,191		28,752		50,657
63	Bloomington, Pontine and Joliet.....	143,413	141,913		1,500		7,364
64	Quincy Horse Railway.....	5,114,340	4,239,826	801,584	52,930	8	236,657
65	Rockford and Interurban.....	8,005,775	6,849,532	1,152,243	4,000	5	67,294
66	Springfield Consolidated.....	9,444,115	7,700,070	1,475,298	208,747	14	234,371
67	St. Louis and Springfield.....	1,419,437	1,364,034		35,403		22,145
68	Springfield and North Eastern.....	257,437	228,376		9,061		6,858
69	Illinois Light and Traction.....	585,000	541,000	40,000	4,000	2	83,231
70	Aurora, Elgin and Chicago.....	12,224,852	10,380,546	1,617,064	327,242	2	67,205
INDIANA.							
	Total for state.....	1,169,110,331	1,157,547,183	27,277,709	4,285,379	95	71,100
1	Indiana Union Traction.....	16,021,263	14,022,835	1,401,270	597,358	7	37,085
2	Angola Railway and Power.....	22,000	22,000				5,365
3	Marion, Bluffton and Eastern.....	485,137	484,049		1,328		14,971
4	Brownstown and Ewing.....	22,375	22,375				22,375
5	Central Indiana Lighting.....	200,780	200,780	(*)		1	28,640
6	Indianapolis, Columbus and Southern.....	1,321,737	1,294,382		27,375		30,190
7	Fort Wayne and Springfield.....	138,458	136,402		56		5,978
8	Evansville and Southern Indiana.....	8,448,078	6,584,563	1,423,064	430,451	11	106,667
9	Evansville Railways.....	323,218	320,918		2,300		5,762
10	Evansville Suburban and Newburgh.....	421,780	421,780				15,172
11	Fort Wayne and Wabash Valley.....	17,041,491	13,557,902	2,936,690	546,900	8	64,034
12	French Lick and West Baden.....	238,293	238,293				218,617

* Includes 6 companies operating part of year.

† Fare passengers reported for 19 companies only, representing 2,759.67 miles of track operated. (See No. 33, St. Louis and Belleville—freight traffic only.)

‡ Passenger-car hours reported for 59 companies only, representing 643,214,602 fare passengers carried.

§ For four months only.

¶ Not reported.

‡ For six months only.

§ Estimated.

¶ Freight traffic only.

GENERAL TABLES.

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HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.				CAR HOURS.				Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare passengers per car mile.	Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare passengers per car hour.				
1170,332,093	106,646,747	3,665,316	4.22	116,687,877	16,149,124	538,753	39.81			23	
1,540,328	1,530,328	1,000	5.54	168,843	168,743	100	57.37	Yes			1
28,810	28,810		4.42	2,800	2,800		44.22	No			2
74,825	63,875	10,950	3.68					Yes			3
43,070	39,420	3,650	.45	3,400	1,400	2,000	12.33	No			4
49,364	49,364		1.92					No			5
773,208	773,208		4.50	95,630	95,630		36.35	No			6
307,962	251,510	56,443	1.32	16,342	12,577	3,765	26.32	No			7
438,680	437,480	700	2.50	55,780	55,400	380	27.61	No			8
13,784	13,784		2.98					No			9
101,230	101,230		3.44	11,234	11,234		31.03	No			10
344,841	344,841		5.85	51,100	51,100		39.51	No			11
292,003	292,717	26,280	1.22	617,921	16,007	1,314	19.46	No			12
1,345,881	1,092,080	253,792	2.71	64,755	54,604	10,151	54.23	Yes		1	13
34,379,780	33,611,353	750,627	4.83	4,118,045	4,009,787	108,258	40.51	Yes			14
29,869,443	29,671,806	197,597	5.27	5,101,301	5,141,173	20,328	40.70	Yes			15
12,823,453	12,839,700	16,643	3.07	1,456,282	1,454,926	1,356	27.11	Yes			16
2,800,191	2,767,932	32,259	3.82	274,781	271,881	2,700	38.94	No			17
1,085,199	1,077,909	7,290	2.68	58,775	58,800	375	49.42	No			18
864,000	864,000	20,000	4.14	127,606	124,966	2,500	31.99	No			19
76,000	76,000		.33					No			20
509,178	509,178		2.17	37,925	37,925		34.32	No			21
7,441,578	7,441,578		4.17	406,105	406,105		62.53	No			22
10,551,921	10,551,921		3.38	783,405	783,405		45.49	No			23
13,242,406	13,114,238	88,168	4.14					No			24
1,459,731	1,459,731		4.45	136,822	136,822		47.46	No			25
4,968,000	4,968,000		3.34	372,067	372,067		44.54	No			26
2,841,835	2,835,531	6,304	2.03					No			27
1,823,310	1,823,310		3.29	184,191	184,191		32.58	No			28
845,786	845,786		4.61	70,482	70,482		55.37	Yes			29
170,757	170,757		1.00	98,550	98,550		31.29	No			30
722,756	628,244	94,512	1.32	33,616	27,315	6,301	30.26	Yes			31
634,579	492,103	142,475	1.20	31,865	22,368	9,497	26.32	No			32
116,126	116,076	50	2.36	14,600	13,140	500	20.88	Yes			33
352,977	352,977		1.60	37,017	37,017		16.15	No			34
378,600	(*) 378,600			186,300	(*) 186,300			No			35
4,171,213	3,898,453	282,760	7.25	503,342	403,342	100,000	60.86	Yes			36
704,729	700,828	4,200	.47					No			37
301,000	300,000	1,000	1.78	36,500	36,000	500	14.80	No		1	38
673,130	673,130		3.61	78,913	78,913		30.75	No			39
190,339	154,002	36,247	1.43	13,188	11,080	1,508	18.82	Yes		1	40
13,509	13,509		3.93	1,717	1,717		31.11	No			41
58,000	58,000		3.04					No			42
73,530	42,915	30,641	2.56					Yes			43
366,803	366,803		2.58	25,920	25,920		36.56	No			44
5,775	5,775		2.92	1,155	1,155		14.60	No			45
860,192	765,237	94,955	1.64	33,884	30,600	5,275	41.05	Yes			46
296,987	296,987		3.68	24,500	24,500		44.42	No		1	47
299,813	296,328	12,485	1.23	22,053	20,969	1,084	10.84	Yes			48
121,150	121,150		7.19	49,345	49,345	1,000	17.93	No			49
95,940	95,940		3.68	12,775	12,775		42.67	Yes		1	50
265,643	262,633	3,000	3.95	27,900	27,900	500	39.00	No			51
1,387,970	951,439	436,531	2.45	138,746	95,143	43,653	24.48	No		1	52
12,60,000	60,000		3.37	13,500	13,500		14.29	No			53
172,802	168,867	3,935	5.73	27,511	25,040	1,825	37.65	No			54
180,730	168,460	18,250	2.97	45,000	43,800	1,200	11.42	Yes		1	55
302,301	302,301		4.85	30,723	30,723		47.74	No		1	56
251,330	240,000	11,330	1.44	14,210	13,080	1,130	20.36	No			57
6,528	6,528		3.41					No			58
172,000	172,000		2.42	87,000	87,000		4.75	No		1	59
150,000	150,000		1.06	15,000	15,000		18.60	No			60
3,503,137	3,503,137		3.41	449,142	449,142		27.56	No			61
257,142	257,142		2.76	21,000	21,000		32.29	No			62
114,586	114,586		1.24	5,900	5,900		23.89	Yes			63
803,447	802,447	1,000	4.94	101,404	101,404		41.98	No			64
2,196,891	2,089,909	70,923	3.28	183,206	183,000	12,606	37.31	No		3	65
1,888,938	1,888,938		4.11	214,984	214,984		30.10	No			66
976,065	870,721	105,764	1.59	60,704	34,829	5,875	39.74	Yes			67
106,844	170,635	26,190	1.34	11,227	9,481	1,746	24.09	No			68
222,650	222,650		2.43	25,742	25,742		21.02	No		1	69
4,720,571	4,679,771	40,800	2.22	267,545	262,800	4,745	30.50	Yes		2	70
41,329,611	39,304,604	1,605,007	3.46	3,923,040	3,734,879	188,161	35.47			18	
7,246,750	6,670,616	576,144	2.10	683,956	454,625	29,231	30.84	Yes		4	1
10,300	9,000	700	2.29	2,382	2,142	240	10.27	No		1	2
350,513	321,736	37,777	1.51	21,343	17,632	3,711	27.06	No			3
7,384	7,384		3.03	3,650	3,650		6.13	No			4
83,650	83,650		2.40	16,425	16,425		12.22	No			5
776,151	721,777	54,374	1.79					Yes		1	6
59,290	46,900	12,490	2.92	8,214	6,000	2,184	22.65	No			7
1,803,485	1,765,390	38,165	3.73	210,715	206,275	4,440	31.92	No		1	8
467,170	467,000	20,670	5.80					Yes			9
84,000	72,000	12,000	5.80					Yes			10
4,780,676	4,618,431	121,445	2.94	495,502	456,707	9,735	29.75	Yes		4	11
14,322	14,322		16.64	5,475	5,475		43.52	No			12

* For one month only.

* For two months only.

* For eight months only.

* For seven months only.

* Includes 4 companies operating part of year.

* Includes 2 companies operating part of year.

* Passenger-car hours reported for 26 companies only, representing 132,470,502 fare passengers carried.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
INDIANA—Continued.							
13	Hammond, Whiting and East Chicago.....	2,902,330	2,902,330	(1)		3	111,680
14	Indianapolis Traction and Terminal.....	73,230,402	54,251,168	17,414,463	1,562,771	33	398,530
15	Terre Haute, Indianapolis and Eastern.....	23,335,689	20,271,314	2,436,549	627,826	17	52,703
16	Indianapolis and Cincinnati.....	1,577,538	1,498,164		91,174		12,585
17	Indianapolis, Crawfordsville and Western.....	2,270,440	270,000				5,838
18	Toledo and Chicago Interurban.....	4,578,400	458,550	121,200	850	1	10,492
19	Kokomo, Marion and Western.....	1,505,213	1,525,453	37,836	31,004	3	38,133
20	Chicago-New York Electric Air Line.....	986,729	986,729				7,165
21	Lebanon-Thornton Traction.....	100,743	100,743				10,024
22	Madison Light and Railway.....	111,354	107,704		3,650		20,308
23	Louisville and Southern Indiana.....	5,832,138	4,943,155	716,632	172,331	2	104,440
24	Louisville and Northern.....	1,540,921	1,480,068	18,250	42,603	2	47,151
25	Winona Interurban Railway (Peru division).....	43,409	43,422		87		4,332
26	Muncie and Portland.....	636,706	609,611		27,095		18,838
27	Indianapolis and Louisville.....	135,726	34,072	1,654		1	610
28	Chicago, South Bend and Northern Indiana.....	9,683,751	8,909,742	741,922	72,087	9	111,397
29	Southern Michigan Railway.....	751,590	744,106	3,436	4,015	1	18,324
30	Vincennes Traction and Light.....	1,187,565	1,147,439	14,771	25,355	1	141,659
31	Washington Street Railway.....	201,175	201,175				68,195
32	Winona Interurban Railway.....	327,872	315,216		12,656		12,077
33	Winona and Warsaw.....	380,821	381,823		4,998		97,404
IOWA.							
Total for state.....		473,611,748	61,439,800	11,114,440	1,057,448	60	96,024
1	Albia Interurban.....	96,020	6,020				1,881
2	Boone Electric.....	315,620	315,620				157,810
3	Fort Dodge, Des Moines and Southern.....	432,572	432,572				4,201
4	Boone Suburban.....	155,843	155,843				37,105
5	Peoples Gas and Electric.....	3,350,100	2,750,000	600,000		2	161,765
6	Cedar Rapids and Marion City.....	3,262,570	2,881,120	411,959		7	144,489
7	Cedar Rapids and Iowa City.....	504,787	518,408		72,378		16,997
8	Centerville Light and Traction.....	228,100	228,000				142,538
9	Clinton Street Railway.....	2,598,638	2,355,782	201,153	31,701	3	151,986
10	Iowa and Illinois Railway.....	437,072	437,072				8,347
11	Tri-City Railway.....	18,413,075	15,855,679	2,850,692	307,304	25	212,960
12	Des Moines City Railway.....	20,896,878	16,716,535	3,693,359	576,784	9	191,574
13	Interurban Railway.....	123,242	503,806		29,344		7,456
14	Union Electric.....	4,085,804	3,320,807	704,997		6	190,195
15	Fort Madison Street Railway.....	378,908	364,496		14,300		91,125
16	Keokuk Electric Railway and Power.....	408,017	380,943	64,241	13,783	2	59,969
17	Marshalltown Light, Power and Railway.....	802,000	700,000	40,000	2,000	1	195,876
18	Mason City and Clear Lake.....	513,434	204,944	8,300		3	29,120
19	Citizens Railway and Light.....	1,531,804	1,318,707	185,700	32,427	1	109,476
20	Oskaloosa Traction and Light.....	638,107	478,579	159,528		1	66,102
21	Ottumwa Railway and Light.....	3,434,420	2,575,820	858,600		1	220,156
22	Sioux City Traction.....	7,001,462	6,083,927	1,006,450	42,176	4	149,631
23	Tama and Toledo.....	146,882	146,882				48,961
24	Waterloo, Cedar Falls and Northern.....	1,809,835	1,554,784	300,000	35,051	5	22,961
KANSAS.							
Total for state.....		24,027,005	20,480,380	3,290,319	384,300	25	81,585
1	Arkansas City Street Railway.....	25,320	25,320				4,604
2	Atchison Railway, Light and Power.....	1,009,848	756,038	157,273	96,537	1	84,004
3	Fort Scott Gas and Electric.....	504,144	438,662	25,462	40,000	1	54,831
4	Girard Coal Belt Railway.....	210,000	10,000				1,295
5	Hutchinson Interurban.....	926,262	793,806	132,396		2	133,893
6	Union Traction.....	1,007,500	900,000	6,000	1,500	2	32,727
7	Iola Electric Railroad.....	1,039,500	1,019,000	500	20,000	2	113,855
8	Electric Railway, Light and Ice.....	303,136	307,706		5,400		60,115
9	Kansas City-Western Railway.....	3,228,927	2,330,856	261,553	36,518	5	67,300
10	Joplin and Pittsburg.....	1,907,877	1,806,877	36,000	5,000	2	57,691
11	Missouri and Kansas Interurban.....	226,800	216,000		10,800		6,000
12	Kansas City and Olathe.....	164,505	45,000		25		9,912
13	Salina Street and Interurban.....	82,400	82,400		400		27,333
14	Consolidated Street Railway.....	80,000	80,000				39,024
15	Topeka Railway.....	7,618,327	6,112,446	1,304,308	141,573	8	176,711
16	Wichita Railroad and Light.....	5,026,969	4,637,639	1,262,807	26,553	1	208,246
17	Union Street Railway.....	85,000	85,000	10,000		1	13,000
KENTUCKY.							
Total for state.....		107,708,404	85,858,931	20,546,140	1,394,423	42	220,643
1	Bowling Green Railway.....	222,916	221,916		1,000		8,243
2	Cincinnati, Newport and Covington.....	28,735,218	25,249,046	3,261,135	225,037	14	365,504
3	Henderson Traction.....	719,224	449,515	230,709		1	71,922
4	Lexington Railway.....	3,642,807	3,300,145	300,000	142,662	1	194,126
5	Blue Grass Traction.....	650,231	651,231				19,400
6	Central Kentucky Traction.....	736,423	735,893		600		20,150
7	Louisville Railway.....	67,148,273	50,000,000	16,220,773	927,500	15	308,542
8	Louisville and Eastern.....	829,824	829,824				34,837
9	Maysville Street Railroad.....	435,030	435,030				104,409
10	Owensboro City Railroad.....	1,227,244	1,099,238	100,000	28,006	2	75,810
11	Paducah Traction.....	2,967,000	2,417,309	660,523	56,178	9	142,278
12	Somerset Water, Light and Traction.....	436,543	431,843		5,000		162,994
13	Winchester Railway, Light and Ice.....	38,391	37,941		450		29,412

(1) Not reported.

(2) For six months only.

(3) For eleven months only.

(4) For six and one-half months only.

(5) For two and one-half months only.

(6) Includes 2 companies operating part of year.

(7) Passenger-car hours reported for 10 companies only, representing 50,891,661 fare passengers carried.

(8) For one-half month only.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
725,692	725,692		4.00	71,160	71,160		40.79	No.		13
9,164,384	9,164,384		5.92	943,324	943,324		57.51	Yes.		14
7,067,800	6,380,392	507,498	3.08	1,048,099	959,544	88,555	21.13	Yes.		15
1,670,884	1,493,401	177,423	1.00	83,278	68,775	16,503	22.26	Yes.		16
1,274,000	239,000	25,000	1.13					No.		17
1,332,970	281,237	51,733	1.02	23,247	20,812	2,435	21.94	No.		18
667,142	649,170	18,072	2.35					Yes.		19
132,290	32,290		3.00					No.		20
68,650	68,650		1.47	6,439	5,438		15.65	No.		21
73,000	73,000		1.48	20,950	20,950		5.14	No.		22
1,082,299	1,063,405	18,894	4.65	143,850	138,338	7,512	36.26	No.		23
346,612	335,748	10,864	4.41	29,309	29,509		60.16	No.		24
37,500	37,500		1.17	5,008	5,008		8.76	No.		25
428,455	403,643	24,812	1.51	22,998	19,398	3,600	31.43	No.		26
177,658	75,121	2,517	.45	3,740	3,453		9.87	No.		27
2,301,614	2,345,294	56,320	3.95	240,170	225,108	15,062	59.40	Yes.		28
538,989	500,273	38,626	1.49	29,712	26,290	3,422	28.31	Yes.		29
317,288	317,288		3.62					No.		30
92,321	92,321		2.18	14,300	14,500		12.87	No.		31
307,873	296,050	41,823	1.18	13,015	11,781	1,234	26.76	No.		32
51,840	51,840		7.37	6,480	5,480		58.92	Yes.		33
17,128,619	16,647,206	481,353	3.69	1,931,089	1,896,247	36,742	71.00			12
2,556	2,650		2.11	322	322		18.70	No.		1
70,900	70,900		4.45	10,950	10,950		28.82	No.		2
4,283,564	274,204	9,380	1.58	19,511	18,044	1,467	23.97	No.		3
70,500	70,500	500	2.23					No.		4
642,525	642,525		4.28	84,280	84,280		32.03	Yes.		5
765,324	748,512	16,812	3.85	96,022	92,190	3,832	31.25	No.		6
527,990	494,826	33,154	1.05					Yes.		7
55,784	55,784		4.09	8,480	6,480		35.19	Yes.		8
491,684	491,684		4.79	61,400	61,400		38.33	No.		9
531,029	485,724	45,305	.69					Yes.		10
3,628,332	3,128,332		4.37	436,017	436,017		36.36	Yes.		11
2,802,633	3,787,133	15,000	4.41	487,225	484,215	3,000	34.52	Yes.		12
817,816	742,316	75,500	.80	56,706	47,036	9,650	12.02	No.		13
940,001	940,001		2.33	128,682	128,682		25.81	No.		14
131,470	131,470		2.77	16,425	16,425		22.19	No.		15
265,100	265,100	100	1.47					No.		16
146,000	146,000		5.21	18,250	18,250		41.04	No.		17
213,036	186,845	26,211	2.70	29,877	26,227	3,650	19.25	Yes.		18
301,125	301,125		4.36	45,000	45,000		28.57	No.		19
233,035	227,385	5,650	2.10	21,170	21,170		22.61	No.		20
667,000	667,000		3.86	86,870	86,870		29.05	Yes.		21
1,690,135	1,690,135		4.15	197,100	197,100		34.92	Yes.		22
56,177	51,677	6,500	2.84					Yes.		23
822,643	575,362	247,281	2.70	128,832	112,500	16,332	13.70	Yes.		24
5,799,633	5,746,711	50,922	3.55	280,479	279,639	840	28.88			4
12,000	12,000		2.11					No.		1
244,932	244,932		3.09	40,152	40,152		18.83	No.		2
165,000	165,000		2.06	18,000	18,000		24.37	No.		3
5,920	5,920		1.09					No.		4
197,000	197,000		4.02	25,029	23,028		31.72	No.		5
175,086	167,716	7,380	5.37	17,232	16,392	840	64.90	No.		6
179,000	179,000	3,600	5.79					No.		7
108,585	108,585		3.04	21,175	21,175		18.31	No.		8
945,026	910,326	35,300	3.22					Yes.		9
746,751	746,751		2.50					No.		10
144,000	144,000		1.50					No.		11
15,000	15,000		3.00					No.		12
41,500	41,500		1.89	7,300	7,300		11.23	No.		13
37,900	37,900		2.11	10,220	10,220		7.63	Yes.		14
1,413,556	1,408,914	4,642	4.34					Yes.		15
1,339,122	1,339,122		3.46	141,372	141,372		32.60	No.		16
27,375	27,375		3.11					No.		17
18,750,421	18,345,627	404,794	4.69	946,637	914,715	31,922	37.82			2
99,485	99,200	225	2.24	26,402	26,290	182	8.44	No.		1
4,211,880	4,179,015	32,865	6.04	532,854	528,159	4,695	47.81	Yes.		2
115,200	115,200		3.90	28,800	28,800		15.61	No.		3
690,870	690,870		4.85	103,410	103,410		31.91	No.		4
342,030	324,030	18,000	2.01	25,356	24,156	1,200	26.96	No.		5
323,107	315,007	7,200	2.33	35,392	34,792	600	21.15	No.		6
10,472,196	10,427,396	244,800	4.70					Yes.		7
690,768	456,355	34,413	1.42					No.		8
175,200	175,200		2.48					No.		9
592,740	525,600	67,140	2.09	90,885	65,700	25,185	16.73	No.		10
718,720	718,549	131	3.36	87,053	86,983	60	27.79	No.		11
82,740	82,740		5.22	10,950	10,950		30.44	No.		12
45,465	45,465		.83	5,475	5,475		6.93	No.		13

* Includes 3 companies operating part of year.

* Includes 1 company operating part of year.

* Passenger car hours reported for 8 companies only, representing 8,075,881 fare passengers carried.

* Estimated.

* For one month only.

* For three months only.

* Passenger-car hours reported for 10 companies only, representing 34,604,077 fare passengers carried.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
LOUISIANA.							
	Total for state.....	194,785,724	85,193,632	8,045,350	1,546,742	28	357,176
1	Alexandria Electric Railways.....	682,000	620,000	31,000	31,000	1	124,000
2	Baton Rouge Electric and Gas.....	461,648	461,648	.....	.....	.....	117,150
3	Lake Charles Street Railway.....	1,335,840	1,299,740	.....	36,100	.....	169,901
4	City of Monroe Municipal.....	1,188,148	789,605	394,543	3,450	3	90,240
5	St. Charles Street Railroad.....	10,905,000	9,916,906	200,000	114,182	3	429,480
6	Orleans Railroad.....	3,979,000	3,167,548	451,790	38,258	4	288,242
7	New Orleans Railway and Light.....	39,208,905	32,957,584	5,491,812	849,569	10	357,501
8	New Orleans and Carrollton.....	23,437,778	21,884,550	1,117,835	435,394	4	623,314
9	New Orleans and Pontchartrain.....	925,379	652,607	258,157	14,615	2	73,337
10	Algiers Railway and Lighting.....	272,289	243,900	28,600	.....	1	54,082
11	Shreveport Traction.....	2,904,000	2,900,000	.....	4,000	.....	207,141
MAINE.							
	Total for state.....	140,657,875	39,730,116	3,787,800	130,838	27	86,615
1	Bangor Railway and Electric.....	5,079,884	4,607,694	375,148	97,042	2	73,700
2	Biddeford and Saco.....	1,029,428	930,845	95,513	.....	3	114,210
3	Portland and Brunswick.....	768,118	753,118	.....	15,000	.....	15,922
4	Calais Street Railway.....	581,611	561,363	22,251	.....	2	79,065
5	Fairfield and Shawmut.....	248,450	238,650	.....	.....	.....	18,141
6	Benton and Fairfield.....	51,793	47,176	.....	6,617	.....	10,102
7	Freeport Horse Railroad.....	10,000	10,000	.....	.....	.....	3,333
8	Lewiston, Augusta and Waterville.....	6,901,787	6,837,651	64,136	.....	4	81,313
9	Norway and Paris.....	143,452	140,352	.....	.....	.....	91,351
10	Portland Railroad.....	17,060,637	14,650,599	2,404,038	.....	9	153,211
11	Rockland, Thomaston and Camden.....	1,633,994	1,633,994	.....	.....	.....	68,598
12	Rockland, South Thomaston and Owl Head.....	81,000	81,000	.....	.....	.....	19,048
13	Atlantic Shore Line.....	5,519,218	4,722,113	796,805	.....	7	60,634
14	Somerset Traction.....	143,258	113,258	.....	.....	.....	11,258
15	Arden and Turner.....	62,190	59,879	.....	2,320	.....	4,780
16	Waterville and Fairfield.....	755,940	752,081	.....	3,859	.....	150,416
17	Waterville and Oakland.....	607,703	682,703	.....	15,000	.....	118,731
MARYLAND.							
	Total for state.....	211,402,192	152,288,326	55,614,494	3,519,462	190	283,987
1	United Railways.....	200,387,721	142,114,965	55,165,581	3,307,145	194	363,946
2	Cumberland Electric Railway.....	1,900,657	1,617,532	.....	14,106	1	224,660
3	Cumberland and Westport.....	3,520,595	3,379,958	300,000	.....	.....	131,694
4	Frederick and Middlebrook.....	1,071,294	1,058,229	.....	21,065	.....	52,305
5	Hagerstown and Boonsboro.....	297,776	292,703	.....	5,073	.....	24,091
6	Hagerstown and Myersville.....	274,489	274,489	.....	.....	.....	26,509
7	Hagerstown and Northern.....	494,600	494,600	.....	.....	.....	46,690
8	Hagerstown Railway.....	1,382,076	1,096,511	148,823	16,742	1	80,667
9	Baltimore and Bel Air.....	298,075	297,497	.....	578	.....	65,455
10	Kensington Railway.....	158,918	158,918	.....	.....	.....	62,813
11	Washington, Berwyn and Laurel.....	328,590	326,528	.....	2,052	.....	36,281
12	Washington and Rockville.....	954,708	945,123	.....	9,585	.....	87,269
13	Washington, Woodside and Forest Glen.....	302,734	300,229	.....	2,505	.....	106,293
MASSACHUSETTS.							
	Total for state.....	7814,586,310	597,469,848	213,574,726	3,541,736	378	297,633
1	Amesbury and Hampton.....	563,000	529,708	29,292	4,000	1	60,538
2	Lexington and Boston.....	2,963,771	2,780,665	102,100	80,888	4	84,909
3	Interstate Consolidated.....	3,565,565	3,466,647	76,459	22,579	3	132,179
4	Lowell and Fitchburg.....	800,142	782,012	.....	18,130	.....	42,780
5	Old Colony Street Railway.....	64,628,481	55,675,154	8,472,806	491,522	57	149,817
6	Boston and Northern.....	103,416,404	92,878,973	9,736,837	960,594	103	173,914
7	Boston Elevated Railway.....	447,349,799	271,084,815	176,265,130	59,854	61	592,341
8	Blue Hill Street Railway.....	1,716,293	1,682,642	32,652	959	2	85,111
9	Berkshire Street Railway.....	8,005,672	8,054,590	302,978	249,464	5	113,526
10	New York, New Haven and Hartford.....	9,372,222	572,222	.....	.....	.....	33,465
11	Concord, Maynard and Hudson.....	1,149,548	1,146,088	3,460	.....	2	75,599
12	Conway Electric Street Railway.....	50,532	59,532	.....	.....	.....	9,258
13	Cottage City and Braintree.....	910,677	104,677	.....	.....	.....	15,061
14	Dedham and Franklin.....	470,541	470,541	.....	.....	.....	49,760
15	Connecticut Valley Street Railway.....	3,774,511	3,675,304	72,829	26,357	5	77,760
16	Providence and Fall River.....	1,154,821	1,143,705	8,371	12,655	1	91,282
17	Lowell and Fitchburg.....	334,000	167,186	.....	1,173	1	58,928
18	Dartmouth and Westport.....	4,333,913	3,739,563	593,169	81,181	3	122,175
19	Fitchburg and Leominster.....	6,341,439	5,293,364	917,724	190,134	4	129,276
20	Boston and Worcester.....	10,989,391	10,371,066	340,066	78,259	6	132,836
21	Gardner, Westminister and Fitchburg.....	1,278,849	1,278,849	.....	.....	1	78,553
22	Haverhill and Southern New Hampshire.....	953,000	945,07	.....	7,533	.....	114,741
23	Haverhill and Plattsburgh.....	413,000	408,731	.....	4,269	.....	148,001
24	Haverhill and Amesbury.....	2,708,580	2,531,122	151,985	25,473	6	89,063
25	Holyoke Street Railway.....	10,942,613	9,121,199	921,414	.....	10	132,001
26	Westborough and Hopkinton.....	275,125	272,773	.....	352	.....	62,422
27	Lawrence and Methuen.....	1,611,000	1,494,755	.....	6,245	.....	121,757
28	Nahant and Lynn.....	709,000	631,495	74,769	2,862	1	104,532
29	Norfolk and Bristol.....	1,444,817	1,394,221	39,027	11,619	2	63,955
30	Marlborough and Westborough.....	766,810	514,964	2,285	9,561	1	38,298
31	Lowell, Acton and Maynard.....	162,273	151,913	300	.....	1	66,623
32	Medford and Medway.....	451,508	451,508	.....	.....	.....	40,169
33	Milford, Attleborough and Woonsocket.....	1,885,834	1,890,979	3,125	12,750	1	61,271
34	Milford and Uxbridge.....	3,520,164	3,495,621	.....	24,543	.....	97,290
35	Norfolk and Cohasset.....	2,128,364	1,990,982	137,372	.....	2	106,130
36	Middlesex and Boston.....	9,273,001	273,014	9,240	9,838	2	15,800
37	Union Street Railway.....	10,957,476	8,800,096	2,103,630	47,750	3	274,504

1 Includes 1 company operating part of year.

2 Passenger-car hours reported for 9 companies only, representing 83,783,967 fare passengers carried.

3 For four months only.

4 Passenger-car hours reported for 12 companies only, representing 20,994,682 fare passengers carried.

5 Passenger-car hours reported for 9 companies only, representing 9,057,717 fare passengers carried.

6 Estimated.

7 Includes 3 companies operating part of year.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
120,500,652	20,174,142	332,490	4.22	12,183,074	2,182,974	100	38.38		7	
365,100	365,000	100	1.70					No.	1	1
200,570	200,570		2.23	23,500	23,500		19.30	No.		2
231,457	231,457		5.62	29,912	29,912		43.45	No.	2	3
230,910	230,910	300	3.34					No.	1	4
2,270,794	2,270,794		4.37	265,708	265,708		37.32	No.		5
900,629	900,629		3.81	110,034	110,034		31.51	No.		6
10,272,680	9,987,669	285,000	4.30	1,131,352	1,131,352		37.67	Yes	1	7
4,945,390	4,921,190	46,200	4.47	502,439	502,439		43.50	No.		8
365,650	365,650		1.78	36,129	36,129		18.00	No.		9
606,654	606,654		3.65	77,840	77,840		35.58	No.		10
635,800	635,000	800	4.57	77,100	77,000	100	37.03	No.	2	11
19,074,000	8,802,670	271,390	4.17	554,767	517,402	37,365	40.58		13	
1,122,645	1,090,310	62,335	4.35	115,848	115,848		39.77	Yes	1	1
322,779	322,779		2.88					No.		2
259,875	259,875	3,000	3.18	14,800	14,800		50.80	No.	1	3
184,960	184,960		3.05	19,876	19,710	166	28.48	No.		4
130,000	29,700	300	1.95					No.		5
27,086	9,086	18,000	5.19	9,770	3,650	6,120	12.02	No.		6
5,000	5,000		2.00					No.		7
1,018,905	1,500,735	28,170	4.30	181,343	173,951	7,392	39.31	Yes	2	8
43,122	13,122		4.48	5,700	5,700		33.57	Yes		9
3,325,387	3,313,387	12,000	4.42					Yes	3	10
474,932	129,675	48,257	3.83	55,587	45,115	10,472	36.22	Yes	1	11
42,080	42,080		1.90					No.		12
1,136,754	1,059,622	77,132	4.46	100,124	96,604	3,520	48.80	Yes	2	13
103,176	100,276	2,900	1.43	8,568	8,556	12	17.14	No.	1	14
102,975	80,640	16,335	.69	5,906	4,904	1,002	12.21	Yes		15
130,873	128,733	2,100	5.84	13,555	13,535		55.48	No.		16
163,620	163,620		4.17	15,150	15,150		45.06	No.	2	17
29,351,027	28,993,767	387,260	5.26	246,354	246,136	218	39.80		8	
27,206,918	26,953,727	343,191	5.27					Yes	4	1
279,265	275,940	3,325	5.80	118,025	118,260	665	13.08	Yes	1	2
442,129	436,175	6,254	7.74	38,853	37,935	1,208	80.82	Yes	1	3
181,040	156,220	24,820	6.74	16,972	16,972		62.06	Yes	2	4
49,272	44,347	4,925	6.69	6,402	5,672	730	51.60	Yes		5
105,175	105,175		2.61					Yes		6
65,760	65,760		7.53					No.		7
397,640	392,865	4,745	2.79	35,325	34,800	525	31.51	No.		8
87,146	87,146		2.38	6,742	6,742		30.06	Yes		9
65,740	65,740		2.42	6,570	6,570		24.19	No.		10
118,185	118,185		2.76					No.		11
183,078	183,078		5.14	12,646	12,646		74.74	Yes		12
78,589	78,589		3.93	6,919	6,919		44.60	No.		13
118,671,549	117,168,135	1,503,414	5.10	11,281,728	11,005,616	276,112	48.10		31	
157,126	144,001	12,526	3.65	12,458	10,640	1,810	49.74	Yes		1
195,817	165,817		4.00					No.		2
500,430	500,430		5.78	54,060	54,060		64.12	Yes		3
188,009	188,009		4.14	19,067	19,067		39.11	No.		4
10,264,110	10,284,381	219,729	5.11	1,270,038	1,222,200	47,748	45.55	Yes	4	5
17,809,888	17,034,375	775,013	5.27	2,149,263	2,105,507	43,756	44.11	Yes	5	6
52,487,726	51,830,198	657,528	5.23	5,187,082	5,355,963	81,129	50.61	Yes		7
396,856	390,644	6,192	4.31	38,809	37,790	619	44.53	Yes		8
1,808,797	1,795,389	13,008	4.49					No.	2	9
280,273	280,273		6.41	2,627	6,515	12	87.83	Yes		10
280,072	280,072		4.09					Yes		11
30,412	30,412		1.96					Yes		12
111,902	111,902		6.98	11,120	1,120		93.06	No.		13
135,316	135,316		3.18	13,100	13,100		35.81	Yes		14
863,799	863,799		4.25	90,000	90,000		40.84	Yes		15
290,011	254,155	25,896	4.50	30,800	15,805	14,995	72.37	Yes		16
78,340	78,340		2.56	5,227	4,719	508	41.46	No.		17
546,410	501,599	42,901	7.45	47,005	40,013	7,392	93.71	Yes	1	18
1,039,438	1,024,361	14,507	5.14	100,522	108,117	1,805	48.68	Yes	1	19
1,883,037	1,820,385	14,952	5.81	113,695	112,721	945	93.78	Yes		20
257,601	257,601		4.96					Yes	1	21
245,940	239,004	6,936	3.96	19,917	18,327	1,590	51.59	Yes		22
71,240	69,301	1,939	5.90	6,995	6,175	400	60.19	No.		23
549,432	549,432		4.61	55,503	55,503		45.64	Yes		24
2,020,988	1,967,872	52,786	4.64	222,830	222,830		40.53	Yes	1	25
79,015	79,015		3.45					Yes		26
371,040	362,300	9,640	4.43	31,472	29,082	2,410	55.22	No.		27
117,087	117,087		5.35					No.		28
440,099	440,099		3.12	42,147	42,147		33.08	Yes		29
185,321	181,463	1,858	2.92					No.	1	30
45,122	45,122		2.92					No.		31
151,300	151,300		2.99	15,140	15,140		20.85	No.		32
408,108	401,588	6,520	4.66					Yes	1	33
734,772	734,772		4.70	88,000	88,000		36.72	Yes	1	34
527,968	527,968		3.77					Yes		35
1,449,320	1,449,320		5.15					Yes		36
1,634,031	1,627,896	6,185	5.41	235,553	234,301	1,252	37.58	Yes		37

* Includes 2 companies operating part of year.

* Passenger-car hours reported for 40 companies only, representing 532,280,812 fare passengers carried.

* For three and one-half months only.

* For two and one-half months only.

* Not reported.

* For one and one-half months only.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
MASSACHUSETTS—Continued							
38	New Bedford and Onset.....	1,904,162	1,844,295		69,867		41,802
39	Citizens Electric Street Railway.....	2,319,789	2,255,793	39,995	24,161	3	122,493
40	Newton and Boston.....	1,763,576	1,439,803	231,295	81,478	3	92,009
41	Newton Street Railway.....	7,898,000	6,874,787	751,007	272,606	8	154,446
42	Northampton Street Railway.....	3,784,928	3,479,211	305,257		8	139,945
43	Norton and Taunton.....	1,169,920	1,164,155	5,765		1	38,194
44	Athol and Orange.....	941,140	941,140				131,097
45	Pittsfield Electric.....	6,229,329	4,039,129	190,700	9,500	1	137,527
46	Plymouth and Sandwich.....	65,410	94,436		974		14,848
47	Brookton and Plymouth.....	2,306,671	2,251,156	60,071	15,444	1	93,003
48	Norwood, Canton and Sharon.....	211,092	205,520		5,482		32,736
49	Shelburne Falls and Colrain.....	186,272	186,272				28,572
50	Springfield Street Railway.....	20,611,146	25,862,240	3,434,717	319,189	30	181,693
51	Bristol and Norfolk.....	241,646	241,646				36,067
52	East Taunton Street Railway.....	1,099,872	926,115	81,118	2,639	1	81,098
53	Taunton and Pawtucket.....	1,195,484	1,045,082	110,135	10,267	1	55,649
54	Templeton Street Railway.....	789,957	788,757		1,200		42,891
55	Uxbridge and Blackstone.....	615,176	612,061		3,115		61,887
56	Ware and Brookfield.....	441,111	441,111				36,395
57	Warren, Brookfield and Spencer.....	1,451,671	1,035,828		15,843		51,534
58	Western Massachusetts Street Railway.....	2,422,759	2,480,984	296,085	46,290	4	91,626
59	Linwood Street Railway.....	510,559	510,559				161,447
60	Worcester Consolidated.....	49,654,742	32,757,068	7,563,147	335,527	24	195,345
61	Worcester and Blackstone Valley.....	1,501,576	1,245,797	30,229	4,550	1	84,311
62	Worcester and Southbridge.....	4,379,747	4,229,829	82,270	67,618	3	72,964
63	Worcester and Holden.....	872,350	859,965		12,385		68,799
MICHIGAN.							
Total for state.....		237,073,709	183,239,012	47,410,475	6,424,282	142	143,713
1	Adrian Street Railway.....	339,684	338,424		1,260		83,356
2	Bay City Traction.....	4,816,457	3,489,112	862,649	47,296	4	165,911
3	Benton Harbor-St. Joe Railway and Light.....	2,416,229	2,269,620	119,628	36,581	1	79,320
4	Detroit United Railways.....	156,138,415	115,259,177	36,036,559	4,782,888	91	298,262
5	Detroit and Port Huron Shore Line.....	5,094,806	3,072,793	318,373	28,700	2	39,718
6	Detroit, Jackson and Chicago.....	2,264,042	2,155,263	6,817	107,822	1	29,554
7	Detroit, Monroe and Toledo Short Line.....	1,554,516	1,519,689		42,827		29,289
8	Escanaba Electric.....	782,040	764,000		18,000	1	89,617
9	Grand Rapids Railway.....	25,239,833	19,084,533	5,281,990	894,400	17	208,014
10	Grand Rapids, Grand Haven and Muskegon.....	927,139	876,082		50,457		17,779
11	Grand Rapids, Holland and Chicago.....	1,299,678	1,299,678				19,067
12	Houghton County Street Railway.....	5,151,675	4,964,598	168,153	18,924	2	183,662
13	Twin City General Electric.....	599,790	599,790				131,483
14	Marquette County Gas and Electric.....	728,789	712,729				152,619
15	Jackson Consolidated Traction.....	3,267,050	2,833,283	433,767	10,000	1	91,496
16	Michigan United Railways.....	11,057,656	9,398,967	1,659,309		5	63,136
17	Manistee Light and Traction.....	379,406	363,200	14,000	2,000	1	37,072
18	Marquette City and Presque Isle.....	629,905	587,024	31,025	8,756	2	97,837
19	Menominee and Marinette.....	2,247,734	1,740,724	483,024	23,986	7	97,247
20	Muskegon Traction and Lighting.....	2,517,746	2,209,784	273,449	34,514	1	152,199
21	Owosso and Corunna.....	377,931	361,831		12,000		71,732
22	Detroit, Flint and Saginaw.....	261,068	261,068		200		19,018
23	Saginaw Valley Traction.....	7,420,128	5,849,911	1,509,193	61,024	5	157,765
24	Trans-St. Mary's Traction.....	964,292	844,295	115,449	4,597	1	111,822
MINNESOTA.							
Total for state.....		175,451,502	130,122,311	39,134,456	170,735	104	297,763
1	Interstate Traction.....	462,105	462,105				146,236
2	Duluth Street Railway.....	20,662,424	16,810,601	3,690,992	161,235	15	223,813
3	Twin City Rapid Transit.....	132,076,479	117,414,647	35,261,823		87	322,683
4	Granite City Railway.....	642,200	609,000	40,000	2,200	1	70,598
5	Winona Railway and Light.....	1,007,899	834,958	165,641	7,300	1	128,061
MISSISSIPPI.							
Total for state.....		* 10,312,912	9,084,096	1,068,289	160,537	19	105,140
1	Columbus Railway, Light and Power.....	* 305,138	301,538		3,600		65,982
2	Delta Electric Light, Power and Manufacturing.....	554,698	515,038	61,630		1	98,698
3	Gulfport and Mississippi Coast.....	1,899,760	1,449,919	(5)	49,842	2	74,284
4	Jackson Electric Railway, Light and Power.....	2,126,125	1,969,125	146,000		3	152,317
5	Meridian Light and Railway.....	2,010,706	1,728,679	282,027		7	144,057
6	Southern Light and Traction.....	949,681	814,631	115,052		1	117,554
7	Pascagoula Street Railway and Power.....	787,251	562,411	224,020		1	57,970
8	Vicksburg Railway and Light.....	1,679,000	1,333,845	238,000	107,065	4	131,284
MISSOURI.							
Total for state.....		* 402,716,513	346,361,741	140,454,246	5,900,526	403	375,794
1	Cape Girardeau-Jackson Interurban.....	728,426	578,426	150,000		3	128,579
2	Water, Light and Transit.....	74,649	68,649		6,000		49,015
3	St. Francois County Railway.....	283,001	283,001				29,171
4	Humboldt Railway and Electric.....	965,088	852,088	43,000	70,000	1	121,727
5	Kansas City and Westport Belt.....	728,732	710,327	10,205		1	34,857
6	Metropolitan Street Railway.....	142,224,478	99,250,476	42,071,002		118	419,199
7	Missouri Water, Light and Traction.....	288,300	280,000		17,000	1	76,294
8	St. Joseph Railway, Light, Heat and Power.....	18,194,685	13,951,725	4,004,877	258,442	10	324,432
9	St. Louis, Lakeside and Grant Park.....	1,31,489	9,038	5,546	7,135	1	6,991
10	United Railways.....	313,945,119	216,779,688	91,797,610	5,367,901	249	449,922
11	St. Louis, St. Charles and Western.....	1,972,212	1,912,686	44,035	14,581	2	104,863
12	Sedalia Light and Traction.....	696,000	625,000	70,000		3	69,931
13	Springfield Traction.....	4,420,884	3,275,046	1,027,511	118,257	6	209,739
14	Southwest Missouri Railroad.....	8,168,500	7,890,000	328,500	40,000	6	129,799

* Passenger-car hours reported for 17 companies only, representing 57,737,109 fare passengers carried.

* Includes 1 company operating part of year.

* Passenger-car hours reported for 6 companies only, representing 6,541,650 fare passengers carried.

* For six months only.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
467,412	458,648	28,764	4.02	37,919	33,728	4,191	54.68	Yes.....		38
341,406	340,048	1,358	6.63	39,570	39,076	194	56.85	Yes.....	1	39
454,534	454,534		3.15					Yes.....		40
1,538,823	1,538,823		4.47					No.....		41
839,902	838,082	31,930	4.31	81,876	81,276	400	42.81	Yes.....	1	42
358,410	358,410		3.25					Yes.....		43
144,838	144,838		6.50	21,527	21,527		43.72	No.....	1	44
848,619	848,619		4.76	115,055	115,055		35.11	No.....	1	45
42,640	42,640		2.21	4,380	4,380		21.56	No.....		46
472,741	454,810	17,931	4.95	50,230	47,321	2,909	47.57	Yes.....	1	47
60,249	60,249		2.97	9,000	9,000		22.84	No.....	1	48
64,254	64,254		3.43	8,840	8,840		21.07	Yes.....		49
5,719,400	5,635,106	84,303	4.59					Yes.....	1	50
69,917	69,917		3.46					Yes.....		51
150,975	150,975	3,000	5.90					No.....		52
270,446	270,446		3.89	35,500	35,500		28.63	No.....		53
229,967	229,967	9,300	3.57	26,002	24,420	1,672	31.78	Yes.....		54
139,601	139,601		4.38					No.....		55
152,192	152,192		2.60					No.....		56
370,765	370,292	473	2.80	14,471	14,471		30.48	No.....		57
659,515	649,555	9,960	3.82	35,792	35,020	82	29.08	No.....	2	58
41,900	41,900		7.41	6,727	6,727		40.16	No.....		59
6,015,137	5,991,380	33,757	5.48	676,573	676,573		48.42	Yes.....		60
351,454	349,313	2,141	4.31					No.....		61
949,470	938,969	10,501	4.50					Yes.....	2	62
151,370	151,370		5.68					No.....		63
45,836,200	44,388,125	1,448,075	4.13	1,456,057	1,607,346	48,711	135.92			15
85,410	85,410		3.98	16,790	16,790		20.16	Yes.....		1
948,830	948,830		4.10	98,222	98,222		39.56	Yes.....	1	2
679,926	679,706	220	3.59	68,119	60,945	7,174	37.09	No.....		3
24,300,551	23,884,507	506,044	4.83					Yes.....		4
2,439,609	2,363,618	75,991	2.20					Yes.....		5
1,569,609	1,390,200	209,409	1.55					No.....		6
1,178,144	1,065,170	112,974	1.42					No.....		7
147,000	147,000		5.20	27,375	27,375		27.91	Yes.....		8
3,653,151	3,560,988	92,163	5.31	407,732	397,875	9,857	47.97	Yes.....	2	9
706,655	584,958	121,697	1.50					Yes.....	2	10
930,381	894,262	36,119	1.62	69,944	52,344	17,600	24.83	Yes.....	1	11
715,683	703,085	12,598	7.06	70,807	75,247	1,060	65.98	Yes.....	1	12
210,240	210,240		2.85	23,940	23,360		25.67	No.....		13
117,480	117,480		6.07	13,054	13,054		54.60	No.....	2	14
951,420	951,420		2.94	97,500	97,500		28.06	No.....	1	15
3,440,771	3,329,581	90,190	2.81	263,661	252,641	11,020	26.65	Yes.....	1	16
128,360	126,360	2,000	2.88	30,880	28,880	2,000	12.58	Yes.....	1	17
135,125	135,125		4.34	18,615	18,615		31.53	No.....		18
711,967	711,967		2.44	91,161	91,161		19.10	Yes.....	1	19
568,593	568,593	3,500	3.71	68,459	68,459		32.28	No.....	1	20
120,450	120,450		3.04					No.....		21
158,820	158,820	500	1.65					Yes.....		22
1,519,737	1,503,067	16,670	3.89	159,914	159,914		36.58	No.....	1	23
270,288	270,288		3.12	24,964	24,964		38.82	No.....		24
24,370,604	24,370,604		5.50	2,091,665	2,091,665		50.57			2
122,480	122,480		3.77	13,608	13,608		33.96	No.....		1
3,515,207	3,515,207		4.78	388,249	388,249		43.30	Yes.....		2
20,187,358	20,187,358		5.82	2,219,728	2,219,728		52.90	Yes.....	2	3
188,482	188,482		3.18	27,375	27,375		21.92	No.....		4
337,167	337,167		2.34	42,705	42,705		19.55	No.....		5
*2,799,763	2,792,923	6,840	3.25	*246,009	*246,009		*28.53			4
*66,096	65,798	300	4.58	*11,986	11,986		25.16	No.....	3	1
223,380	223,380		2.21	37,230	37,230		13.24	No.....		2
546,500	545,000	1,500	3.88	60,917	60,917		30.37	No.....		3
744,600	744,600		2.66					No.....		4
437,890	437,890		3.95	54,137	54,137		31.93	No.....		5
221,282	221,282		3.74	33,328	33,328		24.89	No.....		6
157,920	152,880	5,040	3.68					Yes.....	1	7
400,143	400,143		3.33	48,611	48,611		27.38	No.....		8
*69,137,991	68,615,923	522,068	5.05	*7,099,230	*7,015,863	82,363	*65.01			4
110,000	110,000		5.26					No.....		1
20,075	18,250	1,825	3.76	8,395	7,300	1,095	9.40	No.....		2
126,000	108,000	18,000	2.62	7,200	5,400	1,800	52.41	Yes.....		3
273,000	273,000		3.12					No.....	1	4
328,500	228,424	9,075	3.12	18,905	18,905		37.62	No.....		5
23,538,264	23,455,175	100,089	4.23	2,562,419	2,572,063	20,356	38.59	Yes.....		6
62,030	62,030		4.51					No.....		7
2,917,961	2,878,540	39,421	4.84	328,657	323,112	5,544	43.12	Yes.....	1	8
22,500	22,500		.40	13,765	13,765		2.40	No.....		9
38,792,455	38,447,977	344,478	5.64	4,023,387	3,970,799	52,588	54.59	Yes.....		10
427,700	427,700		4.47	38,463	38,463		40.73	No.....		11
178,460	175,240	3,220	3.57	38,880	38,880	1,000	16.08	No.....		12
644,468	642,968	1,500	5.10	37,125	37,125		88.22	No.....		13
1,706,330	1,706,330		4.42					No.....	1	14

* Not reported.

* Passenger-car hours reported for 10 companies only, representing 335,851,227 fare passengers carried.

* For eight months only.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
MONTANA.							
	Total for state.....	14,080,640	13,862,231	145,231	92,187	11	200,200
1	Anaconda Copper Mining.....	1,262,800	1,262,800				187,401
2	Borah Street Railway.....	27,005	26,890		745		10,756
3	Butte Electric Railway.....	9,000,000	9,000,000	(7)	(3)	6	318,108
4	Great Falls Street Railway.....	1,474,889	1,246,929	80,480	38,474	4	115,457
5	Helena Light and Railway.....	1,900,057	1,721,944	55,745	42,968	1	91,593
NEBRASKA.							
	Total for state.....	61,731,806	49,323,051	11,975,339	433,416	60	225,497
1	Citizens Railway.....	1,247,035	1,161,073	76,765	10,067	4	92,934
2	Omaha, Lincoln and Beatrice.....	345,745	378,413	1,268	14,104	1	57,685
3	Lincoln Traction.....	8,068,030	6,943,784	1,031,721	92,525	11	163,345
4	Nebraska City Street Railway.....	17,500	17,500				8,333
5	Omaha and Council Bluffs.....	51,583,019	40,400,744	10,805,585	316,000	44	287,821
6	Red Cloud Street Railway.....	32,850	32,850				20,530
7	Omaha and Southern Traction.....	394,687	394,687				33,153
8	Sioux City, Crystal Lake and Homer.....	24,000	24,000				4,000
NEVADA.							
	Total for state.....	661,025	620,000	31,025	10,000	2	86,713
1	Reno Traction.....	661,025	620,000	31,025	10,000	2	86,713
NEW HAMPSHIRE.							
	Total for state.....	22,020,103	20,096,090	1,704,139	220,274	2	81,200
1	Berlin Street Railway.....	932,232	932,232				107,385
2	Claremont Railway and Lighting.....	291,889	291,889				66,708
3	Boston and Maine electric branch.....	2,376,826	2,376,826	400,000		1	78,791
4	Chester and Derry.....	333,457	333,457				41,092
5	Dover, Somersworth and Rochester.....	1,885,000	1,880,133		4,867		106,000
6	Everett, Hampton and Amesbury.....	198,000	193,560		4,440		43,200
7	Hudson, Pelham and Salem.....	1,694,000	1,687,373		6,627		64,055
8	Keene Electric Railway.....	504,889	504,889				58,815
9	Lancaster Street Railway.....	692,158	692,158				76,906
10	Manchester and Derry.....	141,073	141,073		987		4,680
11	Manchester Street Railway.....	8,156,000	6,664,608	1,304,130	187,532	1	167,764
12	Manchester and Nashua.....	772,586	757,190		15,396		39,887
13	Haverhill, Plaistow and Newton.....	762,000	756,755		5,245		80,240
14	Portsmouth Electric Railway (Boston and Maine).....	1,192,334	1,192,334				61,875
15	Portsmouth and Exeter.....	400,000	398,295		1,705		32,540
16	Seabrook and Hampton Beach.....	9354,000	351,025		2,975		60,522
NEW JERSEY.							
	Total for state.....	345,202,500	269,009,070	69,329,479	6,774,020	482	260,229
1	Atlantic Coast Electric Railway.....	5,909,442	5,909,442	(12)		1	177,514
2	Central Passenger Railway.....	1,200,307	1,124,795	67,215	9,387	2	297,454
3	West Jersey and Seaboard (Atlantic City and Longport branch).....	5,812,507	5,705,823	50,052	20,632	2	399,339
4	Atlantic City and Suburban.....	1,554,890	1,525,379		29,510		82,811
5	Atlantic City and Shore.....	2,108,126	2,008,016	6,963	3,147	2	72,445
6	Bridgeport and Millville.....	3,138,457	2,848,176	182,061	108,120	6	75,249
7	West Jersey and Seaboard (Camden and Atlantic City branch).....	3,870,913	3,810,013				25,840
8	Cape May, Delaware Bay and Sewell's Point.....	422,284	422,284				46,141
9	Ocean Street Passenger Railway.....	75,590	75,590				17,828
10	New Jersey and Hudson River Railway and Ferry.....	5,846,008	5,774,337		72,741		184,335
11	Jersey Central Traction.....	1,904,427	1,742,491	58,314	104,732	3	69,124
12	Millville Traction.....	838,588	799,606	30,853	38,034	2	58,655
13	Morris County Traction.....	1,456,820	1,352,188		4,632		45,073
14	Burlington County Railway.....	1,032,081	1,002,932		40,159		70,740
15	Public Service Railway.....	282,000,975	211,025,860	65,576,936	6,000,153	400	366,021
16	Ocean City Electric Railroad.....	330,000	322,575		828		44,943
17	Easton and Washington.....	1,097,002	1,028,735		38,567		57,152
18	Point Pleasant Traction.....	9179,070	179,070		3,000		26,396
19	Muscongegh County Electric.....	1,315,588	1,275,588	40,000		1	72,026
20	Hudson River Traction.....	1,877,234	1,827,813		21,421		103,330
21	New Jersey Rapid Transit.....	9,617,263	61,263				9,286
22	Trenton Street Railway.....	15,741,782	12,236,782	3,285,000	200,000	9	160,061
23	Camden and Trenton.....	3,404,199	3,400,109				76,323
24	New Jersey and Pennsylvania.....	1,700,838	1,691,411	2,455	6,972	3	65,065
25	Trenton and New Brunswick.....	942,174	942,174				39,900
26	Five Mile Beach Electric Railway.....	760,272	725,672	23,600	11,000	1	126,204
NEW MEXICO.							
	Total for territory.....	1,074,508	1,029,048	27,300	18,250	1	101,886
1	Albuquerque Traction.....	801,000	700,000	27,300	14,000	1	149,020
2	Las Vegas Railway and Power.....	272,608	269,048		3,650		53,810

¹ Passenger-car hours reported for 3 companies only, representing 2,995,563 fare passengers carried.

² Not reported separately.

³ Estimated.

⁴ Passenger-car hours reported for 7 companies only, representing 49,259,051 fare passengers carried.

⁵ Includes 2 companies operating part of year.

⁶ Passenger-car hours reported for 12 companies only, representing 17,310,221 fare passengers carried.

⁷ For one month only.

⁸ Includes mileage of cars of another company used under contract.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
2,432,477	2,432,477		5.70	84,337	1,831,487	850	135.88			3
133,475	133,475		9.40					No.		1
10,730	10,730		2.51	2,280	2,280		11.79	No.		2
\$1,556,510	\$1,556,510		6.17					No.		1
358,068	358,068		3.45	42,400	41,610	850	29.97	No.		4
373,094	373,094		4.62	30,597	39,597		43.49	No.		5
10,356,712	10,248,974	107,738	4.81	1,135,976	1,132,741	3,237	43.52			2
252,225	252,225		4.60	44,530	44,530		25.07	No.		1
130,745	130,745		2.89	12,098	12,098		30.28	No.		2
1,734,467	1,720,229	14,238	4.04	206,272	203,035	3,237	34.30	Yes.		3
13,140	13,140		1.33	2,100	2,100		7.90	No.		4
8,073,405	7,980,045	93,360	5.06	857,851	857,851		47.10	Yes.		1
10,950	10,950		3.00	4,380	4,380		7.50	Yes.		6
117,680	117,680		3.10	8,257	8,257		44.17	No.		7
24,000	24,000		1.00					No.		8
250,000	250,000		2.48	28,400	27,400	1,000	22.63			
250,000	250,000		2.48	28,400	27,400	1,000	22.63	No.		1
\$4,776,654	4,658,029	120,025	4.31	\$443,997	\$414,050	29,317	\$41.81			8
154,920	154,920		5.37					No.		1
107,507	95,567	12,000	4.10	12,720	10,300	2,520	38.42	Yes.		2
738,787	737,190	1,597	3.22	72,059	71,624	435	33.18	No.		3
64,288	57,217	5,071	5.83	8,395	7,300	1,095	43.08	Yes.		1
371,900	368,700	3,200	6.10	31,342	34,742	800	54.44	No.		4
304,714	288,400	38,214	3.50	31,673	22,063	9,580	42.26	Yes.		1
530,500	525,000	14,000	3.78	34,612	31,112	3,500	63.88	Yes.		6
134,682	134,682		3.74					Yes.		1
154,910	154,910		4.40					No.		9
18,092	8,842		5.26	558	558		78.33	No.		10
1,230,711	1,218,711	12,000	5.47	176,025	167,825	8,200	30.71	Yes.		11
214,892	211,902	\$21,000	3.54					No.		12
174,740	169,800	4,840	4.46	11,327	10,116	1,211	74.81	No.		13
375,742	372,719	3,023	3.20	47,630	45,934	1,716	25.95	Yes.		14
130,200	126,000	3,600	3.15	10,550	9,650	900	41.27	No.		15
\$52,340	50,000	1,440	6.90	\$3,456	3,006	300	113.28	No.		16
\$55,658,531	55,029,951	628,580	4.99	\$5,443,917	\$5,442,007	1,820	\$44.67			6
1,143,818	1,143,818		5.17					No.		1
125,837	125,837		8.94					No.		2
1,177,040	1,173,026	3,993	4.99					Yes.		3
500,390	500,390		2.99	40,765	40,765		37.42	No.		4
407,045	407,045		5.15					Yes.		5
643,344	643,344		4.43	65,981	65,981		43.17	Yes.		6
3,850,926	3,549,553	304,393	1.09					Yes.		7
50,002	50,002		8.34	10,950	10,950		38.56	No.		8
10,658	10,658		6.88	3,650	3,650		20.09	No.		9
890,492	876,142	10,000	6.59	70,894	70,894		81.44	No.		10
403,406	401,406		3.33	85,112	85,112		20.47	No.		11
301,590	301,590		2.55					No.		12
287,732	287,732		4.70	35,966	35,966		37.00	Yes.		13
323,731	318,271	5,460	3.43	24,792	22,442	1,830	48.66	No.		14
39,483,011	39,178,277	304,734	5.39	4,671,234	4,671,234		43.18	Yes.		15
110,000	110,000		3.02					No.		16
221,272	221,272		4.65					No.		17
\$8,000	\$8,000		3.07	\$6,000	6,000		29.35	No.		18
340,065	340,065		3.75	33,573	33,573		37.09	No.		19
453,310	453,310		4.28	44,882	44,882		41.35	No.		20
\$3,000	\$3,000		1.72					No.		21
2,801,026	2,801,026		4.28	310,498	310,498		39.44	Yes.		22
875,837	875,837		3.89					No.		23
507,073	507,073		3.33					No.		24
310,118	310,118		3.04	18,250	18,250		51.03	No.		25
219,000	219,000		3.31	21,900	21,900		33.14	No.		26
249,050	249,450	600	4.14	24,050	24,060		\$31.55			1
219,000	219,000		3.40	24,660	24,060		31.55	No.		1
29,450	29,850	600	9.23					No.		2

* For six months only.

† Includes 1 company operating part of year.

‡ Passenger-car hours reported for 15 companies only, representing 243,076,632 fare passengers carried.

§ Not reported.

|| For four months only.

¶ For three months only.

||| Passenger-car hours reported for 1 company only, representing 760,000 fare passengers carried.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
NEW YORK.							
Total for state.....		12,123,242,239	1,657,686,801	455,906,610	9,648,828	1,942	426,718
1	Albany and Hudson Railroad.....	1,461,672	1,461,672				30,707
2	United Traction.....	43,782,480	35,938,376	6,964,354	879,750	38	394,234
3	Hudson Valley Railway.....	7,157,982	6,986,009	117,898	44,075	9	50,694
4	Troy and New England.....	322,234	322,234				32,223
5	St. Lawrence International.....	213,314	213,314				27,739
6	Babylon Railroad.....	21,038	21,038				13,211
7	Eastern New York Railroad.....	84,400	79,154		5,245		5,277
8	Binghamton Railway.....	7,249,383	5,820,677	1,172,786	255,920	2	126,536
9	International Railway.....	115,646,436	80,717,393	33,629,746	1,299,297	139	308,895
10	Croton Street Railway (Buffalo).....	20,311,159	13,431,717	6,630,818	248,624	41	129,587
11	Buffalo and Depew.....	336,142	315,129		21,013		23,188
12	Buffalo Southern.....	1,021,187	820,041	129,639	4,217	2	44,864
13	Buffalo and Lake Erie.....	14,067,712	11,063,716	3,387,424	246,572	19	114,111
14	Buffalo and Williamsville.....	661,965	657,316		4,649		59,756
15	Catskill Electric Railway.....	340,565	315,830	20,927	3,802	1	57,425
16	Corning and Painted Post.....	1,087,898	1,039,871	43,967	5,050	2	180,673
17	Cortland County Traction.....	1,592,121	1,515,704	33,623	43,694	3	88,225
18	Elmira Water, Light and Railroad.....	5,796,937	4,355,178	1,396,069	155,660	7	159,148
19	Elmira and Seneca Lake.....	469,899	451,805		18,094		20,161
20	Fishkill Electric Railway.....	1,070,395	1,070,395				148,049
21	Lake Ontario and Riverside.....	51,277	51,277				49,305
22	Glen Cove Railroad.....	393,937	386,370		7,567		111,091
23	Adirondack Lakes' Traction.....	62,961	62,961				13,540
24	Fonda, Johnstown and Gloversville.....	5,163,394	4,746,072	272,938	144,295	2	60,886
25	Great South Bay Ferry.....	42,229	42,229				33,783
26	New York and Long Island.....	5,037,919	4,849,174	154,301	34,444	2	97,139
27	Hornellville Electric Railway.....	500,303	461,984	38,519		2	91,121
28	Hornellville and Canisteo.....	518,640	518,640				119,778
29	Huntington Railroad.....	421,413	413,789		7,624	1	127,713
30	Ithaca Street Railway.....	2,729,012	2,433,565	295,447		1	241,905
31	Jamestown Street Railway.....	4,131,910	2,891,754	1,078,416	163,740	6	117,340
32	Chautauque Traction.....	862,920	803,310	46,506	13,014	4	30,053
33	Kesewille, etc., Railroad.....	49,276	49,276		65		7,912
34	Kingston Consolidated.....	2,906,059	2,781,716	78,061	47,682	5	303,019
35	Lima-Honesdale Light and Railroad.....	30,180	30,180				5,096
36	Wallkill Transit.....	1,272,769	1,146,302	100,057	26,410	4	92,444
37	Orange County Traction.....	2,406,433	2,153,151	343,292		4	126,352
38	New Paltz, Highland and Poughkeepsie.....	176,233	176,233				29,085
39	New York City Railway.....	523,032,340	344,776,308	178,261,972		669	1,239,829
40	Forty-second Street, Manhattanville and St. Nicholas Avenue.....	32,267,428	20,738,495	11,409,433		70	727,156
41	Dry Dock, East Broadway and Battery.....	16,597,944	11,308,829	5,092,615		40	511,936
42	New York City Interborough.....	1,937,072	1,369,400	547,693		9	138,041
43	Southern Boulevard Railroad.....	1,842,481	1,152,958	679,423		3	112,504
44	Yonkers Railroad.....	12,982,949	8,280,908	4,392,041		18	189,687
45	Union Railway.....	48,649,230	33,220,161	15,429,030		64	301,437
46	Tarrytown, White Plains and Mamaroneck.....	3,189,870	2,707,450	152,420		6	116,043
47	Westchester Electric Railroad.....	9,987,765	6,150,372	3,837,393		28	139,306
48	Interborough Rapid Transit.....	449,287,884	419,287,884				2,358,065
49	Pelham Park Railroad.....	205,511	205,511				137,007
50	City Island Railroad.....	196,056	196,056				98,028
51	Brooklyn Heights Railroad.....	313,994,060	228,056,028	84,399,347	1,538,685	391	953,571
52	Nassau Electric.....	88,146,232	60,043,673	27,585,659	569,900	130	428,993
53	Brooklyn Union Elevated.....	52,265,780	48,830,123	3,184,263	281,454	8	513,785
54	Brooklyn, Queens County and Suburban.....	62,426,789	31,353,395	20,033,391	140,043	74	517,724
55	South Brooklyn Railway.....	2,212,679	2,108,894	57,690	16,296	2	68,398
56	Sea Beach Railway.....	1,657,126	1,397,689	80,390	9,047	3	110,478
57	Coney Island and Gravesend.....	956,817	950,098		6,749		141,394
58	Transit Development Co.....	(*)					
59	Bridge Operating Co.....	6,501,234	6,501,234				1,810,929
60	Coney Island and Brooklyn.....	39,158,626	32,880,423	5,806,528	379,675	5	617,000
61	Van Brunt Street and Erie Basin.....	2,399,175	2,008,154	321,021		1	927,262
62	Marine Railway.....	795,292	95,292				173,258
63	New York and Queens County.....	29,131,041	19,110,461	4,684,114	336,466	11	243,191
64	Long Island Electric.....	3,923,571	3,703,753	155,724	44,094	1	134,486
65	Ocean Electric Railway.....	2,016,096	1,949,220		16,876		138,163
66	Staten Island Midland.....	4,787,609	4,300,553	422,509	64,547	4	154,808
67	Richmond Light and Railroad.....	7,177,091	5,892,537	1,283,904	91,250	4	187,058
68	Southfield Beach Railroad.....	131,040	131,040				32,760
69	Electric City Railway.....	303,298	220,966	81,077	645	3	77,532
70	Niagara Gorge Railroad.....	623,491	584,552	23,311	15,028	7	22,987
71	Northport Traction.....	178,967	174,965		3,982		63,863
72	Ogdensburg Street Railway.....	671,302	571,302	100,000		2	57,136
73	Western New York and Pennsylvania.....	5,637,947	5,295,725	199,571	142,651	2	64,284
74	Onondaga Railway.....	1,345,631	1,092,751	215,384	37,496	3	9,465
75	Onondaga and Mohawk Valley.....	1,132,757	1,069,612	40,027	13,118	1	16,578
76	Hudson River and Eastern.....	1,221,225	208,797	12,428		1	85,223
77	Oscego Traction.....	1,280,638	1,127,618	155,000	4,000	2	101,132
78	Poughkeepsie Lighting and Railroad.....	1,324,690	1,312,690	110,001	1,200	2	116,072
79	Putnam and Westchester.....	1,159,809	128,214	20,629	1,066	1	41,106
80	Penn Yan, Keuka Park and Branchport.....	390,226	390,226				70,009
81	Flattsburgh Traction.....	545,570	545,570				118,745
82	New York and Stamford.....	2,820,965	2,650,379	170,586		3	65,361
83	Port Jervis Electric Light, Power, Gas and Railroad.....	431,172	294,453	35,712	11,067	1	137,552
84	Poughkeepsie City and Wappingers Falls.....	2,633,176	2,383,772	299,404		5	444,279
85	Cohoes Railway.....	1,511,158	1,181,782	315,703	13,073	1	267,084
86	Rochester Railway.....	60,640,800	48,803,601	16,923,148	824,051	24	30,102
87	Rochester, Charlotte and Manlius.....	102,280	233,290				14,518
88	Rochester, Syracuse and Eastern.....	1,072,163	1,041,390		30,803		25,447
89	Rochester and Eastern Rapid Railway.....	1,376,167	1,342,636	3,504	40,027	2	45,078
90	Rochester and Suburban.....	657,506	646,870		10,636		

* Includes 9 companies operating part of year.

† Includes 7 companies operating part of year.

‡ Passenger-car hours reported for 30 companies only, representing 1,651,300,284 fare passengers carried.

§ For eight months only.

|| For five months only.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.				CAR HOURS.				Mail car- ried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas- sengers per car mile.	Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas- sengers per car hour.			
336,781,703	332,506,950	4,276,753	4.90	35,767,445	35,295,896	471,550	46.78		34	
721,109	681,382	27,627	2.11	26,500	26,500		55.16	Yes.	1	1
8,482,048	8,405,615	76,433	4.28	1,058,780	1,048,861	9,919	34.26	Yes.	2	2
2,331,900	2,151,747	182,243	2.25	208,486	202,784	58,702	33.55	Yes.	2	3
159,577	144,242	12,335	2.23	10,787	9,357	1,430	34.44	No.	4	4
21,900	21,000		9.74					Yes.	5	5
43,628	3,628		5.80					Yes.	6	6
62,485	35,880	26,605	2.21	7,520	4,300	3,140	19.07	Yes.	7	7
1,405,215	1,375,945	29,270	4.23	203,840	196,630	7,200	20.40	Yes.	1	8
17,409,188	17,068,445	340,253	4.73	2,007,477	1,901,640	15,837	40.53	Yes.	2	9
3,082,272	3,063,822	18,450	4.38	382,763	380,287	2,300	35.32	No.	10	10
194,111	193,667	444	1.63	13,761	13,686	75	23.03	No.	11	11
399,947	399,947		2.23	39,009	39,009		22.81	No.	12	12
3,026,350	3,026,350		3.66	337,442	337,442		32.79	Yes.	2	13
198,908	196,909	768	3.34	22,566	22,540	26	29.16	Yes.	14	14
106,156	105,382		3.00	16,305	16,209	96	19.38	No.	15	15
224,188	224,188		1.63	26,608	26,608		38.91	No.	16	16
288,646	271,395	17,251	5.58	33,215	29,200	4,015	51.91	Yes.	1	17
1,269,970	1,249,200	20,680	3.47	152,941	152,401		28.45	Yes.	1	18
304,432	284,504	19,948	1.59	19,795	19,795		22.92	No.	19	19
199,936	199,936		5.35	31,325	31,025	300	34.50	Yes.	20	20
13,140	13,140		3.90	4,380	4,380		11.71	No.	21	21
92,050	92,050		4.20	18,450	18,450		20.94	No.	22	22
39,118	39,118		1.81	6,026	6,026		10.45	No.	23	23
1,652,057	1,652,040	19,447	2.91	158,749	154,800	3,889	30.65	Yes.	1	24
5,800	8,000		5.28	11,554	11,554		24.08	No.	25	25
1,004,125	1,080,330	13,305	4.40	92,240	91,400	550	52.49	No.	26	26
183,745	183,315	430	2.52	21,327	21,327		21.66	No.	27	27
96,020	95,410	610	5.44	9,885	9,885		52.47	No.	28	28
72,880	62,013	10,867	6.67	15,306	15,306		27.03	Yes.	29	29
420,066	419,246	820	5.80					Yes.	1	30
785,340	773,975	11,365	3.74	107,935	103,410	4,525	27.96	Yes.	31	31
486,431	486,011	420	1.80	33,868	30,048	3,820	28.73	Yes.	32	32
29,508	21,793	7,715	2.26	6,650	3,500	3,150	14.06	Yes.	33	33
577,050	574,537	2,512	4.84	69,782	68,099	683	40.26	Yes.	1	34
25,404	21,000	3,504	1.38	1,006			30.01	Yes.	1	35
331,731	323,360	8,371	3.54	26,017	34,019	2,898	33.70	Yes.	1	36
286,622	250,683	19,929	8.39	74,434	68,250	6,184	31.55	Yes.	1	37
86,600	82,100	4,500	2.15	5,706	4,745	1,013	37.14	Yes.	38	38
51,871,823	51,648,606	223,217	6.08	7,327,233	7,292,413	34,820	47.28	Yes.	39	39
4,054,118	4,046,506	7,532	5.12	542,128	542,128		28.25	No.	40	40
1,982,932	1,982,932		5.80	310,243	310,243		37.09	No.	41	41
470,452	470,452		2.95	60,187	60,187		27.04	No.	42	42
410,878	410,878		2.81	48,839	48,839		23.61	No.	43	43
2,263,016	2,228,885	34,131	3.72	280,370	280,895	8,475	29.49	No.	44	44
7,866,222	7,723,571	142,651	4.30	1,020,652	985,057	35,595	33.73	No.	45	45
1,083,301	1,083,301		2.53	105,663	105,663		25.91	No.	46	46
1,507,992	1,437,603	50,069	4.22	237,583	225,153	12,430	27.32	No.	47	47
98,792,770	98,792,770		4.55	6,281,571	6,281,571		71.52	Yes.	48	48
14,680	14,680		14.00					No.	49	49
99,085	99,085		1.98					No.	50	50
42,346,922	40,780,285	1,563,637	5.59	5,279,689	5,214,860	64,829	43.75	Yes.	51	51
12,287,508	12,132,186	145,323	4.94	1,737,533	1,730,404	7,129	34.80	Yes.	52	52
8,676,900	8,398,860	278,040	5.81	621,839	608,044	13,795	54.02	No.	53	53
5,808,974	5,774,826	34,146	5.43	785,434	781,169	4,265	40.14	Yes.	54	54
576,200	559,194	17,156	3.88	45,374	43,229	2,145	50.17	No.	55	55
422,453	417,214	5,239	3.76	33,473	32,818	655	47.77	No.	56	56
187,644	187,644		5.12	25,643	25,643		37.44	No.	57	57
(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
375,247	375,247		17.33	29,707	29,707		218.45	No.	58	58
6,851,723	6,781,723	70,000	4.85	756,145	756,145		43.48	No.	59	59
216,584	216,584		9.55	36,765	36,765		56.25	No.	60	60
757,215	57,215		1.67					No.	61	61
3,961,354	3,915,244	46,110	4.63	443,104	438,136	4,968	41.34	No.	62	62
901,219	947,360	43,979	3.91	94,041	97,323	6,719	42.41	No.	63	63
325,476	325,476		6.14	49,967	49,967		40.50	No.	64	64
1,404,831	1,296,484	8,347	3.32	134,087	134,087		32.07	Yes.	65	65
1,374,400	1,358,400	16,000	4.27	176,223	176,223		32.93	No.	66	66
14,096	14,096		9.32	1,745	1,745		73.09	No.	67	67
37,506	37,506	244	5.93	4,577	4,577	30	49.36	No.	68	68
304,087	304,087		1.92	30,285	29,285		14.88	Yes.	1	69
40,094	37,754	8,340	4.63	13,833	13,833		12.65	Yes.	70	70
335,101	335,101		1.71					Yes.	1	71
1,186,725	1,175,396	13,459	4.51	180,817	177,087	3,730	29.80	Yes.	2	72
643,681	643,681		1.70	30,500	30,500		35.83	No.	73	73
825,814	710,629	115,185	1.53	69,000	62,523	16,437	20.92	Yes.	74	74
49,580	49,580		4.21	11,779	11,779		17.73	No.	75	75
361,490	360,500	990	3.13	46,624	46,624		34.19	No.	76	76
324,309	321,200	1,019	2.75	25,736	25,630	96	34.04	Yes.	1	77
38,962	38,606	286	3.32	4,770	4,770		26.96	No.	78	78
101,830	65,720	16,110	4.44	10,315	9,115	1,200	41.71	Yes.	1	79
143,540	143,184	356	3.74	14,618	14,618		36.44	No.	80	80
601,313	590,854	10,459	4.49					No.	1	81
88,232	88,232		3.22	17,520	17,520		16.24	No.	82	82
506,490	506,496		4.71	50,975	50,975		39.75	Yes.	83	83
377,296	377,296		3.13	62,967	62,967		18.77	No.	84	84
9,615,828	9,457,144	158,684	5.17	1,107,888	1,085,460	22,428	45.04	Yes.	1	85
983,698	82,682	896	2.82	6,897	6,890	7	37.86	No.	86	86
620,585	593,694	26,891	1.75	27,986	27,986		37.30	No.	87	87
629,196	760,480	68,716	1.75	46,783	39,986	6,797	33.33	No.	88	88
147,733	147,733		4.38	10,914	10,914		58.27	No.	2	89

* Reported by other companies of the Brooklyn Rapid Transit System.

† For six months only.

‡ For eleven months only.

§ For ten months only.

¶ For seven months only.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
NEW YORK—Continued.							
91	New York and North Shore.....	113,650	13,050				3.100
92	Schenectady Railway.....	16,650,000	14,131,306	2,193,443	335,317	18	104,967
93	Nassau County Railway.....	275,216	250,060		5,156		168,788
94	Geneva, Watertown, etc., Traction.....	2,198,722	2,085,676	58,557	54,900	1	117,503
95	Syracuse Rapid Transit.....	31,620,376	24,819,300	6,582,864	421,722	22	284,103
96	Syracuse and Suburban.....	2,071,354	2,046,591		24,863		118,196
97	Syracuse, Lake Shore and Northern.....	1,680,299	1,661,743		18,556		78,081
98	Auburn and Syracuse.....	4,808,817	3,900,888	862,328	45,601	1	68,102
99	Utica and Mohawk Valley.....	20,554,082	17,489,210	2,605,057	459,815	6	140,003
100	Black River Traction.....	1,250,000	1,050,000	200,000		1	100,287
101	Elmira, Corning and Waverly.....	777,087	76,557		530		7,528
NORTH CAROLINA.							
	Total for state.....	15,858,622	14,096,151	1,652,848	119,623	13	132,339
1	Asheville Electric.....	3,467,646	3,467,646			1	291,930
2	Asheville Rapid Transit.....	118,455	118,205		250		14,575
3	Charlotte Electric Railway, Light and Power.....	3,438,323	2,979,615	442,008	14,100	4	101,920
4	Durham Traction.....	1,508,776	1,475,808	215,961	16,907	2	265,750
5	Fayetteville Street Railway and Power.....	30,000	30,000				24,000
6	Greensboro Electric.....	1,346,638	1,228,566	100,362	17,710	1	106,832
7	Laurel Park Street Railway.....	45,000	42,000		3,000		28,000
8	Raleigh Electric.....	1,295,008	1,121,717	173,351		1	172,041
9	Salisbury and Spencer Railway.....	844,134	841,134		3,000		197,044
10	Tide Water Power.....	2,219,908	1,670,052	506,852	62,104	2	72,858
11	Fries Manufacturing and Power.....	1,546,584	1,330,418	213,714	2,452	2	120,947
NORTH DAKOTA.							
	Total for state.....	2,105,860	1,671,994	233,866		3	116,345
1	State of North Dakota.....	67,345	67,345				44,897
2	Fargo and Moorhead.....	1,808,510	1,664,670	233,866		3	160,071
3	Grand Forks Transit.....	103,490	103,490				46,000
4	Valley City Street and Interurban.....	36,560	36,560				18,250
OHIO.							
	Total for state.....	909,569,567	480,843,805	122,105,401	5,560,361	286	127,793
1	Northern Ohio.....	33,433,983	28,220,953	5,016,550	196,471	10	131,548
2	Stark Electric.....	1,790,665	1,786,428	13,656	40,581	2	50,448
3	Ashtabula Rapid Transit.....	1,320,377	1,314,793	187	12,307		270,804
4	Pennsylvania and Ohio.....	1,280,536	1,255,156	196	14,184		47,902
5	Lake Erie, Bowling Green and Napoleon.....	92,000	91,250		750		4,263
6	Cambridge Power, Light and Traction.....	804,732	797,448		7,284		83,978
7	Chillicothe Electric.....	678,955	562,155	98,550	18,250	1	108,107
8	Cincinnati Traction.....	119,445,325	89,145,808	29,649,057	650,460	96	405,485
9	Price Hill Inland Plane.....	507,958	507,918				322,072
10	Cincinnati, Lawrenceburg and Aurora.....	1,460,900	1,480,099				37,398
11	Cincinnati Northern Traction.....	6,429,720	5,970,774	299,372	159,583	6	70,022
12	Cincinnati and Columbus.....	557,542	557,342				9,351
13	Ohio Traction.....	3,979,778	3,716,473	242,968	20,437	1	100,064
14	Cincinnati, Milford and Loveland.....	1,012,983	1,012,983				29,508
15	Interurban Railway and Terminal.....	3,201,410	3,201,410				26,414
16	Cleveland Electric Railway.....	182,992,846	129,777,874	51,509,947	945,025	25	508,262
17	Low Park Railway.....	1,401,949	1,401,949				265,147
18	Municipal Traction.....	6,349,802	6,287,460	62,342		1	273,368
19	Eastern Ohio Traction.....	1,020,837	1,016,703	4,134		1	12,282
20	Cleveland, Southwestern and Columbus.....	5,531,400	5,114,044	396,543	26,813	3	28,490
21	Cleveland, Painesville and Eastern.....	2,241,664	2,110,215	75,650	35,828	3	46,800
22	Columbus, Urbana and Western.....	250,553	250,553				28,602
23	Columbus, New Albany and Johnstown.....	668,429	665,093	105	3,141	5	74,730
24	Columbus Railway and Light.....	61,587,478	48,623,169	12,964,309		35	342,103
25	Ohio and Southern.....	14,732	44,732				9,801
26	Scioto Valley Traction.....	1,037,333	967,200		70,043		11,796
27	Columbus, Delaware and Marion.....	2,382,931	2,265,353	17,578		3	66,710
28	Ohio Electric Railway.....	17,720,779	15,689,410	1,661,970	409,400	12	31,040
29	City Railway.....	16,770,829	13,107,001	3,154,732	509,096	11	380,971
30	Peoples Railway.....	11,970,104	8,940,663	2,817,881	191,840	6	287,072
31	Oakwood Street Railway.....	4,275,797	3,351,326	912,553	11,658	3	403,768
32	Dayton and Troy.....	804,580	766,500	4,500	33,580	1	15,359
33	Dayton, Covington and Piquette.....	656,698	656,698				17,908
34	Dayton and Xenia.....	933,742	892,542	41,200		2	16,837
35	Peoples Gas and Electric.....	190,000	190,000				30,000
36	Columbus, Magnolia Springs and Northern.....	38,431	37,785	320	320	1	2,045
37	United Electric.....	390,049	388,309		2,000		182,505
38	East Liverpool Traction and Light.....	5,546,846	5,302,345	247,032	97,460	2	180,824
39	Toledo, Eastern and Findlay.....	350,253	350,813		13,410		15,752
40	Fremont City Railway.....	21,700	21,700				9,964
41	Lancaster Traction and Power.....	1,164,094	954,894	208,000	1,200	2	89,242
42	Lebanon and Franklin.....	103,775	103,775				9,553
43	Western Ohio Railway.....	1,031,422	1,029,932		1,540		9,283
44	Lorain Street Railroad.....	2,681,345	2,490,743	600		2	107,858
45	Mansfield Railway, Light and Power.....	2,238,559	1,914,132	306,427	18,000	2	36,443
46	Cincinnati, Hamilton and Dayton.....	52,842	52,842				33,072
47	Mount Vernon Railway and Light.....	267,432	299,632	7,800		1	9,180
48	Sandusky, Norwalk and Mansfield.....	309,000	308,000		1,000		25,029
49	Cleveland, Painesville and Ashtabula.....	735,308	713,328	18,565	3,415	1	76,915
50	Ohio River Electric.....	907,102	907,102				

* For one and one-half months only.

† For five months only.

‡ Includes 2 companies operating part of year.

§ Includes 1 company operating part of year.

|| Passenger-car hours reported for 9 companies only, representing 12,360,199 fare passengers carried.

• Not reported.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.				CAR HOURS.				Mail car-ried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas-sengers per car mile.	Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas-sengers per car hour.			
16,283	6,283		2.08	11,376	1,376		9.48	No.		91
4,083,225	4,082,685	10,620	3.46	437,620	434,080	3,540	32.55	Yes.	2	92
43,308	43,308		6.21	11,761	11,761		22.96	Yes.		93
429,753	424,408	5,345	4.91	45,504	45,491	103	45.83	No.	1	94
5,169,218	5,152,791	16,427	4.82	632,589	628,822	3,767	39.46	Yes.	1	95
514,616	465,756	48,860	4.39	65,767	41,176	24,591	49.79	Yes.	2	96
530,766	524,406	6,360	3.17	38,838	30,289	8,549	54.32	No.		97
1,367,546	1,367,190	357	2.85	136,674	136,674		26.54	No.	1	98
4,508,583	4,502,903	146,220	4.61	450,430	451,428	18,902	40.54	Yes.	2	99
438,000	438,000		2.40	46,730	46,730		22.47	Yes.		100
733,363	33,363		2.30	22,647	2,647		28.92	No.		101
13,898,334	3,890,645	58,559	3.70	422,293	408,183	14,110	30.36		8	
647,029	644,049	3,650	5.38	87,496	80,926	6,570	42.85	No.	1	1
45,400	37,000	8,000	3.14	5,940	5,000	1,000	23.64	No.	1	2
970,558	970,558		3.07	95,845	95,845		31.10	No.	1	3
312,641	312,641		4.08	48,812	48,812		26.14	No.	1	4
9,454	9,454		3.17	1,240	1,240		23.81	No.	1	5
339,232	339,232	1,000	3.63	50,670	50,670		24.24	Yes.	1	6
18,640	18,640		4.86					No.	1	7
283,980	283,980		3.95	37,335	37,335		29.88	No.		8
172,000	172,000		4.89	25,920	25,920		32.45	No.		9
553,794	553,794	15,909	2.96					Yes.	1	10
504,700	474,700	30,000	2.40	68,486	62,246	6,240	21.37	No.	1	11
389,218	389,218		4.81	61,558	61,558		30.41			
5,475	5,475		12.30	2,555	2,555		26.36	No.		1
364,025	364,025		4.57	51,323	51,323		32.43	Yes.		2
14,508	14,508		7.10	4,736	4,736		21.85	No.		3
5,150	5,150		7.09	2,944	2,944		12.40	Yes.		4
124,480,321	120,596,305	3,883,936	3.99	18,114,202	17,843,685	270,597	37.30		31	
7,048,046	6,824,779	223,268	4.14					Yes.	2	1
639,828	597,001	42,227	2.91	51,356	47,895	3,561	36.32	Yes.	1	2
604,254	404,254		3.26	34,432	34,432		43.96	No.		3
477,142	476,142		2.68	36,743	36,743		34.70	Yes.	2	4
107,888	106,848	1,040	.95	6,367	6,367	200	14.47	Yes.		5
197,240	191,240	6,000	4.17	28,010	27,010	1,000	29.32	No.		6
146,000	146,000		3.95	26,280	26,280		21.39	No.		7
20,761,897	20,717,888	44,009	4.30	2,421,948	2,421,948		36.81	Yes.	1	8
144,306	144,306		3.51					No.		9
603,045	583,490	19,555	2.54	35,433	34,625	808	42.77	No.		10
2,395,128	2,186,226	208,902	2.73	210,173	179,762	30,411	33.21	Yes.	1	11
470,109	463,801	6,308	1.30					Yes.		12
1,172,758	1,172,758		3.17	102,318	102,318		36.32	Yes.		13
461,774	410,450	51,415	2.47					Yes.		14
1,094,170	937,000	157,161	3.42	110,839	83,886	26,952	38.17	Yes.		15
24,728,645	24,438,374	290,271	5.31					Yes.		16
11,238,300	11,238,300		5.88					No.		17
419,164	419,164		13.00					No.		18
706,706	605,623	101,173	1.04					Yes.		19
2,976,223	2,796,673	269,550	1.80					Yes.	2	20
954,003	877,026	76,977	2.41					Yes.	1	21
99,550	98,550	1,000	2.54					No.		22
175,392	175,392		3.70	13,140	13,140		38.14	No.		23
7,576,806	7,532,436	24,000	6.44	841,617	841,617		37.77	Yes.	1	24
828,640	19,827	9,669	2.32	3,327	2,178	1,149	20.54	No.		25
1,117,841	1,012,778	105,025	.96	66,170	45,990	20,180	21.03	No.		26
1,396,895	1,223,754	173,074	1.85					Yes.	2	27
7,682,086	7,070,683	601,413	2.21	504,297	528,201	66,095	29.63	Yes.	1	28
3,165,840	3,165,840		4.14	395,658	395,658		33.13	Yes.		29
2,302,842	2,302,842		4.06	238,647	238,647		37.46	Yes.	1	30
732,000	732,000		4.57					No.		31
970,000	970,000	70,000	.85	86,000	70,000	16,000	10.95	Yes.		32
461,061	451,061	30,000	1.52					Yes.	1	33
562,274	530,020	32,254	1.68	43,372	30,420	3,952	22.64	Yes.		34
45,520	45,520		3.51	11,840	11,840		14.06	No.	1	35
52,083	48,248	3,785	.78	5,211	5,064	147	7.43	Yes.		36
96,000	96,000		4.04	19,000	19,000		20.44	Yes.		37
1,348,114	1,188,661	159,453	4.38	132,354	121,981	10,373	42.65	Yes.		38
375,320	375,320		1.42	23,548	23,548		22.90	Yes.	1	39
375,320	375,320		3.77	11,440	11,440		15.07	No.		40
302,075	302,075	2,000	3.18	42,705	41,975	730	22.75	Yes.		41
58,622	58,622		1.05					No.		42
1,649,964	1,454,182	195,812	.71					Yes.	1	43
703,006	703,006		3.53	60,225	60,225		41.19	Yes.		44
672,420	604,980	7,440	2.84					No.	1	45
8,234	8,234		6.42					No.		46
246,375	246,375		1.22	27,375	27,375		10.95	No.	1	47
291,840	292,000	7,400	1.05	20,220	18,980	1,240	16.23	Yes.		48
467,845	430,815	66,980	1.69					No.		49
284,920	271,866	13,054	2.36					No.		50

* For six months only.

* For four months only.

* Includes 4 companies operating part of year.

* Includes 3 companies operating part of year.

* Passenger-car hours reported for 32 companies only, representing 292,606,535 fare passengers carried.

* For eight months only.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
OHIO—Continued.							
51	Portsmouth Street Railroad.....	2,598,768	2,305,590	82,457	10,721	3	187,264
52	Victory Park Railway.....	175,000	75,000				30,000
53	Salem Electric Railway.....	226,521	223,521		3,000		84,348
54	Springfield Railway.....	7,388,228	5,908,568	1,411,164	68,470	13	184,470
55	Springfield, Troy and Piqua.....	418,425	506,041		12,385		16,613
56	Washington Traction.....	64,585	64,538		47		3,688
57	Springfield and Xenia.....	397,798	397,798				20,327
58	Steubenville and Wheeling.....	670,600	670,000		600		54,032
59	Steubenville and East Liverpool.....	2,602,104	2,517,193	84,911		2	145,924
60	Electric Railway and Power.....	329,000	325,000		4,000		50,310
61	Tiffin, Fostoria and Eastern.....	437,221	437,221				25,719
62	Toledo Railways and Light.....	40,356,006	31,743,238	8,023,092	589,670	14	276,100
63	Toledo Urban and Interurban.....	1,835,562	1,708,148		67,444		30,194
64	Toledo and Indiana.....	807,360	803,000		4,360		13,525
65	Lake Shore.....	5,026,562	4,904,505	120,962	1,095	2	24,997
66	Maumee Valley Railways and Light.....	1,028,333	1,014,056		14,277		33,926
67	Toledo, Port Clinton and Lakeside.....	703,133	706,645		4,468		13,303
68	Toledo and Western.....	795,679	785,837		9,842		8,084
69	Toledo, Ottawa Beach and Northern.....	667,448	633,490	(?)	33,968	2	24,553
70	Wellston and Jackson Belt.....	994,572	994,572				35,320
71	Youngstown and Southern.....	361,291	361,291				16,422
72	Mahoning and Shenango.....	28,980,764	25,447,505	2,315,983	1,217,186	7	172,784
73	Southeastern Ohio Railway.....	1,132,896	1,149,241		3,655		74,820
OKLAHOMA.							
Total for state.....		\$11,080,973	9,502,472	1,363,932	23,569	21	94,606
1	Enid City Railway.....	4386,575	386,575	(5)		2	49,183
2	Guthrie Railway.....	562,173	499,278	39,326	23,599	1	76,812
3	Choctaw Railway.....	765,000	736,272	28,688		1	36,270
4	Muskogee Electric Traction.....	1,286,804	1,183,256	112,548		4	99,777
5	Oklahoma Inter-Urban Traction.....	120,000	120,000				38,710
6	Oklahoma Railway.....	6,301,625	5,121,255	1,382,370		11	155,661
7	Shawnee-Terrace Traction.....	1,119,236	1,119,236				99,932
8	Tulsa Street Railway.....	4336,000	336,000	(5)		2	62,333
OREGON.							
Total for state.....		\$63,930,947	49,459,463	12,146,734	2,324,730	73	195,176
1	Albany Street Railway.....	62,320	62,320				61,098
2	Astoria Electric.....	710,748	674,968		35,780		132,347
3	Portland, Eugene and Eastern Railway.....	177,000	76,000		1,000		11,082
4	Forest Grove Transportation.....	54,750	54,750				28,077
5	Portland General Electric (Oregon City division).....	108,932	106,657		2,275		23,702
6	Portland Railway.....	51,299,302	38,851,218	10,480,583	1,967,501	60	307,465
7	Portland Railway, Light and Power.....	10,615,920	8,815,920	1,500,000	300,000	10	92,284
8	Portland General Electric (Salem division).....	1,001,975	817,650	106,151	18,174	3	65,675
PENNSYLVANIA.							
Total for state.....		\$1,044,468,841	912,233,290	120,065,163	12,190,388	436	251,920
1	Lehigh Valley Transit.....	20,320,093	18,576,115	1,558,578	191,400	11	130,632
2	Altoona and Logan Valley.....	12,037,759	10,360,208	1,535,755	141,736	7	207,579
3	Pittsburg and Beaver.....	1,249,774	244,374		5,400		16,346
4	Beaver Valley Traction.....	6,961,305	5,008,234	1,235,090	117,961	8	157,402
5	Patterson Heights Street Railway.....	64,054	64,054				188,394
6	Columbia and Montour.....	1,903,664	1,855,204		48,460		104,519
7	Butler Passenger Railway.....	2,028,247	1,943,720		84,527		146,364
8	Pittsburg and Butler.....	531,840	509,684		22,166		14,991
9	Carlisle and Mount Holly.....	223,979	223,979				28,901
10	Chambersburg and Gettysburg.....	1,061,805	965,396	68,475	46,934	2	70,985
11	Westside Electric Street Railway.....	111,285	96,456	14,158	671	1	64,304
12	Welster, Monessen, etc.....	1,101,030	1,068,341		12,660		125,965
13	Chester Traction.....	8,541,848	7,938,035	422,350	181,443	7	244,098
14	Philadelphia and Chester.....	873,609	806,900	57,147	9,531	3	92,499
15	Clairton Street Railway.....	117,800	117,800				117,800
16	Philadelphia, Coatesville and Lancaster.....	426,471	422,001		4,380		62,999
17	Corry and Columbus.....	284,216	274,104		10,032		54,833
18	Blue Ridge Traction.....	244,465	242,795		1,670		33,078
19	Danville and Sunbury.....	127,158	127,137		21		74,786
20	Westmoreland County Railway.....	943,926	943,176		750		132,469
21	Philadelphia and Easton.....	1,700,354	1,718,191		72,163		32,754
22	DuBois Traction.....	816,742	791,729	21,978	3,025	1	131,957
23	United Traction Street Railway.....	541,413	540,763		650		101,647
24	Bangor and Portland.....	569,718	567,218		2,500		66,341
25	Easton Transit.....	9,132,457	6,947,117	2,067,080	118,000	10	129,780
26	Northampton Traction.....	2,496,072	2,177,532	230,116	88,404	1	90,731
27	Whitehall Street Railway.....	141,976	141,976				25,914
28	Pennsylvania and Maryland.....	58,320	58,320				8,191
29	Erie Traction.....	310,056	297,069	5,799	6,588	6	10,180
30	Conneaut and Erie.....	707,694	663,553	24,141		2	19,940
31	Gettysburg Transit.....	1614,700	143,700		1,000		14,723
32	Schuylkill Railway.....	4,158,019	4,103,260		54,750		146,545
33	Pittsburg, McKeesport and Greensburg.....	4,255,351	4,040,951	60,533	153,837	2	135,908
34	Danville and Bloomsburg.....	570,066	553,628		16,438		53,182
35	Hanover and McSherrystown.....	391,913	383,213	3,750	4,847	2	70,057

1 For three months only.

2 Included in Toledo Railways and Light.

3 Includes 2 companies operating part of year.

4 For seven months only.

5 Not reported.

6 Includes 1 company operating part of year.

7 Passenger-car hours reported for 7 companies only, representing 49,404,733 fare passengers carried.

8 Includes 11 companies operating part of year.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare passengers per car mile.	CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
514,000	514,000		4.87	58,035	58,035		43.17	No.	1	51
110,000	10,000		7.50	13,200	3,200		23.44	No.		52
65,233	65,233		3.43	16,520	16,520		13.53	No.		53
1,407,096	1,407,096		4.20	167,217	167,217		35.33	No.	1	54
456,298	422,578	36,720	1.20					Yes		55
55,284	55,284		1.17	4,975	4,975		12.97	No.		56
248,572	248,572		1.60	31,207	31,207		12.75	Yes		57
305,432	305,432		2.19					No.		58
530,401	519,065	10,736	4.84	66,731	65,735	976	38.28	No.	1	59
346,500	346,500		.94	31,025	31,025		10.48	No.		60
353,170	329,170	25,000	1.53	33,068	29,019	4,650	15.07	No.	1	61
7,006,975	6,991,975	15,000	4.54	816,055	811,235	4,860	39.13	Yes		62
1,335,093	1,340,678	94,385	1.43	75,743	66,255	7,488	25.91	Yes		63
708,700	630,180	88,520	1.29	84,385	46,335	8,030	17.32	No.		64
2,440,735	2,134,136	306,579	1.56	229,108	218,264	19,884	22.47	Yes	1	65
506,811	489,211	17,000	2.07	46,335	42,735	3,600		Yes		66
705,048	650,416	54,632	1.17	43,122	33,561	9,536	22.59	Yes		67
833,973	676,776	157,197	1.16	59,766	40,150	19,616	19.57	Yes		68
181,726	181,038	2,720	2.50	20,640	20,000	640	31.67	No.		69
205,405	205,405		4.84	18,797	18,797		52.91	Yes		70
235,747	213,665	22,082	1.69	16,086	13,366	3,110	26.59	No.		71
5,595,562	5,502,813	92,749	4.62	584,141	570,180	13,961	44.63	Yes	2	72
422,062	412,602	9,360	2.78	43,165	40,055	3,100	28.09	No.	1	73
*2,479,202	2,400,608	18,534	3.86	*297,968	289,368	8,600	32.84		4	
*100,982	100,982		2.83	*14,426	14,426		26.80	No.	1	1
197,347	197,347		2.58	22,905	22,905		21.71	No.		2
242,085	231,614	10,454	3.18	30,630	27,130	3,400	27.14	Yes	1	3
313,772	313,772		3.77	31,025	31,025		38.14	No.		4
40,620	39,420	1,200	3.04	3,545	3,181	365	37.74	No.		5
1,140,001	1,130,311	4,380	4.51	140,298	138,203	1,095	36.79	No.		6
349,576	347,076	2,500	3.22	41,010	37,940	3,650	29.48	Yes	1	7
*94,146	94,146		3.58	*13,449	13,449		25.03	No.		8
*16,025,037	10,470,327	4,554,710	4.72	*1,229,794	*1,225,414	4,380	*40.32		1	
7,300	7,300		8.54	3,650	3,650		17.07	Yes		1
221,400	208,320	13,140	2.24	30,537	26,157	4,380	25.80	No.		2
139,744	80,744	20,744	1.91	13,312	3,312		22.95	No.		3
71,800	80,540	21,320	1.08					Yes		4
54,750	54,750		1.95	5,475	5,475		19.48	No.		5
7,734,233	7,713,983	20,250	5.04	952,003	952,003		40.78	Yes		6
6,558,010	2,038,010	4,500,000	4.28	184,087	184,087		47.73	Yes	1	7
337,680	337,680		2.42	49,440	49,440		16.54	No.		8
*178,750,577	177,443,372	1,307,206	8.14	*19,025,316	*19,523,202	102,114	*43.28		00	
3,225,071	3,225,071		5.76	337,518	337,518		55.04	Yes	1	1
2,248,657	2,248,657		4.61	246,445	246,445		42.04	No.		2
118,804	88,804		2.75	118,680	8,686		28.13	No.		3
1,279,929	1,239,312	40,616	4.63	127,077	121,280	5,797	46.24	Yes	2	4
7,330	7,330		8.74	6,570	6,570		9.75	No.		5
370,355	370,355		6.01	34,125	24,125		54.36	No.	1	6
10,000,000	10,000,000							Yes	1	7
10,399,061	887,530	11,531	1.22	28,803	28,803		17.70	No.		8
130,678	122,998	7,680	1.82					Yes	1	9
333,098	333,098		2.90	37,965	37,965		26.43	Yes	1	10
10,884	10,884		8.86	*1,322	1,322		72.96	No.		11
207,400	207,400		5.25	20,979	20,979		51.88	No.		12
1,439,741	1,439,741		5.51	154,179	154,179		30.18	Yes		13
244,902	244,902		3.30	26,115	26,115		30.90	Yes		14
86,896	86,896		3.19	6,513	6,513		18.09	No.		15
82,792	82,792		5.10	6,570	6,570		64.25	No.		16
54,750	54,750		5.01	7,380	7,380		37.15	No.		17
62,473	62,473		3.89	7,810	7,810		31.09	Yes	1	18
26,322	26,322		4.83					No.		19
177,640	177,640		5.31	12,005	12,005		74.35	No.		20
608,733	488,248	21,435	3.83	31,347	27,147	4,200	63.29	Yes		21
275,300	275,300		2.89	27,220	27,220		29.09	No.		22
69,855	69,855		7.74	7,437	7,437		72.71	No.	1	23
110,808	110,808		5.12	12,990	12,990		43.77	Yes		24
1,685,814	1,685,814		4.12	205,729	205,729		33.77	Yes	2	25
476,995	476,995		4.67	42,321	42,321		51.45	Yes	1	26
53,650	53,650		2.65	7,240	7,240		19.61	No.	1	27
13,440	13,440		4.34					Yes		28
317,307	269,285	48,022	1.11	24,800	18,839	5,961	18.40	Yes		29
380,132	380,132		1.80	30,351	20,351		22.52	Yes	1	30
55,500	55,500		2.59	5,095	5,095		28.20	No.		31
636,600	636,600		6.45					No.		32
727,190	715,176	12,014	5.65	12,210	12,210			No.	1	33
167,385	167,385		3.31	12,101	12,101		11.11	No.		34
104,320	104,320		3.67	18,104	18,104		21.17	No.	1	35

* Includes 7 companies operating part of year.

** Passenger-car hours reported for 91 companies only, representing 845,012,235 fare passengers carried.

† For six and one-half months only.

‡ Estimated.

§ For eight months only.

|| For two and one-half months only.

¶ For two months only.

** For five months only.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY	NUMBER OF PASSENGERS CARRIED				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
PENNSYLVANIA—Continued							
36	Central Pennsylvania Traction	17,786,243	13,962,583	3,398,646	625,014	13	198,558
37	Lehigh Traction	3,652,148	3,491,113	67,561	93,474	3	178,574
38	Wilkes-Barre and Hazleton	392,916	330,106	.....	2,810	.....	12,421
39	Hummelstown and Campbelltown	499,988	401,223	.....	8,765	.....	39,183
40	Homestead and Mifflin	715,153	686,067	.....	19,056	.....	214,184
41	Juniata Valley Electric	1191,829	187,791	.....	4,108	.....	111,727
42	Indiana County Street Railway	4154,087	153,892	.....	325	.....	6,154
43	Jersey Shore Electric	473,935	470,945	.....	3,000	.....	91,000
44	Jersey Shore and Antietam Fort	162,117	152,117	.....	.....	.....	32,025
45	Camdena Inclined Plane	864,030	864,030	.....	.....	.....	2,541,265
46	Johnstown Passenger Railway	11,124,376	9,193,699	1,930,677	.....	3	208,728
47	West Chester, Kennett and Wilmington	948,955	947,355	.....	1,600	.....	45,988
48	Kittanning and Leechburg	1,139,521	1,129,521	.....	10,000	.....	125,592
49	Conestoga Traction	9,571,228	8,571,829	827,218	367,181	7	58,291
50	Lafayette Street Railway	592,880	585,224	.....	7,652	.....	117,045
51	Luzerne Valley Railway	2,634,730	2,494,515	117,399	22,816	2	112,976
52	Pittsburg and Allegheny Valley	814,854	814,104	.....	750	.....	90,456
53	Valley Traction	4,616,789	4,392,835	15,350	208,604	2	106,545
54	Lewistown and Riceville	2,239,930	2,228,983	10,950	.....	1	217,674
55	Susquehanna Traction	530,540	530,540	.....	.....	.....	88,423
56	Lykens and Williams Valley	410,240	394,514	14,849	877	1	36,733
57	Oakdale and McDonald	196,720	196,720	.....	.....	.....	20,800
58	Highland Grove Traction	289,563	289,563	.....	640	.....	71,284
59	Pittsburg and Westmoreland	98,925	96,285	.....	.....	.....	11,463
60	Lancaster and Southern	36,568	36,568	.....	.....	.....	5,808
61	Carlisle Street Railway	805,000	800,000	.....	5,000	.....	64,000
62	Mechville Traction	1,094,352	827,481	161,501	15,470	1	75,271
63	Mechville and Cambridge Springs	326,927	326,927	.....	.....	.....	19,068
64	Lancaster and York Furnace	212,963	212,963	.....	.....	.....	17,256
65	Lewistown, Milton and Watsontown	568,308	568,308	.....	.....	.....	61,240
66	Montoursville Passenger Railway	450,484	430,484	.....	.....	.....	78,270
67	Piedmont Street Railway	1,166,540	1,161,565	.....	4,984	.....	162,500
68	Bucks County Electric	844,470	841,433	.....	3,100	.....	39,500
69	Schuylkill Valley Traction	9,317,047	8,194,129	1,099,013	111,005	7	143,117
70	Montgomery Traction	837,948	757,653	71,138	9,157	1	52,396
71	Montgomery County Rapid Transit	445,849	41,212	.....	637	.....	8,490
72	Citizens Traction	4,949,628	4,282,141	567,190	130,331	2	115,699
73	Northern Cambria Street Railway	1,157,564	1,157,564	.....	.....	.....	96,780
74	State Belt Electric Railway	846,282	564,188	.....	282,094	.....	31,444
75	Philadelphia Rapid Transit	402,137,038	424,275,813	64,896,739	2,994,466	165	684,481
76	Southwestern Street Railway	1,389,444	1,386,062	33,475	18,917	2	83,698
77	Philadelphia, Bristol and Trenton	1,486,062	1,477,195	.....	8,867	.....	83,789
78	Philadelphia and West Chester	3,510,791	3,444,737	.....	66,054	.....	87,824
79	Hobokenburg, Tacony and Frankford	2,547,166	2,305,728	230,000	11,472	2	141,156
80	Fairmount Park Transportation	2,674,814	2,664,814	.....	10,000	.....	392,820
81	Delaware County and Philadelphia	1,809,701	1,819,201	.....	20,420	.....	123,761
82	Philadelphia and Western	1,928,708	887,787	.....	37,939	.....	35,497
83	Centre and Clearfield	941,761	938,677	.....	3,084	.....	69,620
84	Montgomery and Chester	693,856	535,251	158,605	5,072	1	79,692
85	Pittsburg Railways	232,229,077	200,725,036	28,499,797	3,042,444	61	375,591
86	St. Clair Inclined Plane	658,570	554,814	63,456	390	1	661,518
87	Dispersed Inclined Plane	1,058,981	556,887	603,580	38,713	2	1,180,628
88	Monongahela Inclined Plane	1,175,654	891,401	284,754	.....	1	1,539,684
89	West Penna. Railway	21,672,346	19,822,704	614,151	635,401	7	175,283
90	Pottstown and Reading	1,019,108	970,922	33,086	7,000	1	144,134
91	Pottstown and Northern	137,200	135,000	.....	2,000	.....	39,000
92	Pottsville Union Traction	5,659,611	5,484,443	50,000	125,168	3	134,694
93	Jehonson Traction	2,545,407	2,545,407	.....	.....	.....	82,110
94	United Traction	15,058,276	13,647,373	1,208,962	301,930	27	170,146
95	Neversink Mountain Railway	70,978	69,910	.....	1,068	.....	8,636
96	Mt. Penn. Gravity Railroad	94,297	93,597	.....	.....	.....	11,700
97	Allentown and Reading	3,711,929	3,685,407	.....	78,219	.....	77,140
98	Oley Valley Railway	377,387	372,130	.....	5,257	.....	19,331
99	Waverly, Sayre and Athens	1,797,944	1,608,299	177,314	12,321	3	162,079
100	Seranton Railway	25,808,350	21,178,660	4,633,645	626,664	21	259,694
101	Lackawanna and Wyoming Valley	3,536,595	3,399,370	.....	140,226	.....	68,351
102	Shamokin and Mount Carmel	1,425,591	1,397,343	.....	28,250	.....	76,567
103	Shamokin and Edgewood	1,449,941	1,435,572	1,541	14,248	1	121,181
104	Stroudsburg Passenger Railway	325,239	325,239	.....	.....	.....	118,269
105	Stroudsburg and Water Gap	151,005	52,629	.....	1,676	.....	12,659
106	Sunbury and Northumberland	698,437	699,420	.....	9,017	.....	166,467
107	Eastern Pennsylvania Railways	2,000,498	2,814,742	31,472	52,384	2	142,680
108	Allegheny Valley Street Railway	3,139,020	2,907,908	379,112	53,640	1	133,558
109	Titusville Electric Traction	840,768	727,737	.....	.....	.....	42,551
110	Warren Street Railway	2,541,504	2,284,924	190,580	60,000	2	112,836
111	Warren and Jamestown	401,402	394,190	8,212	.....	1	18,038
112	Washington and Canonsburg	2,855,652	2,778,643	65,039	16,070	1	186,652
113	Chambersburg, Greencastle and Waynesboro	1,167,469	1,111,045	.....	56,424	.....	71,222
114	West Chester Street Railway	2,526,715	2,226,344	8,758	50,653	3	75,289
115	Wilkes-Barre and Wyoming Valley	21,654,005	19,689,045	1,000,000	365,000	1	265,422
116	Wilkes-Barre, Dallas and Harvey's Lake	1,213,152	1,194,212	.....	18,940	.....	71,854
117	Vallantown Traction	788,443	591,397	181,904	25,242	5	159,837
118	South Side Passenger Railway	638,521	488,236	138,141	9,144	3	326,477
119	Williamsport Passenger Railway	3,401,452	2,926,228	398,305	78,518	4	325,136
120	East End Passenger Railway	539,765	377,742	151,281	10,743	4	128,922
121	Trenton, New Hope and Lambertville	787,754	774,976	4,758	8,020	1	52,800
122	York Railways	5,015,975	3,933,714	1,019,572	62,690	3	65,293
RHODE ISLAND.							
	Total for state	104,273,001	91,171,589	11,589,102	1,511,910	131	217,118
1	Sea View Railroad	1,182,672	1,166,056	.....	19,616	.....	58,399
2	Newport and Providence	895,933	873,385	10,067	12,451	1	61,737
3	Rhode Island Company	93,214,253	80,173,643	11,579,015	1,461,595	130	252,964
4	New York, New Haven and Hartford	7,193,944	7,193,944	.....	.....	.....	206,420
5	Providence and Danielson	1,326,832	1,308,584	.....	18,248	.....	47,224
6	Pawtucket Valley Street Railway	456,367	456,367	.....	.....	.....	71,531

For seven months only.
For five months only.

For three and one-half months only.
For six months only.

GENERAL TABLES.

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HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			CAR HOURS.			Fare passengers per car hour.	Mail carried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
2,650,085	2,650,085		5.27						36
552,619	552,619		6.32				Yes		37
328,310	328,310		1.19			61.60	Yes		38
52,500	52,500		9.35			22.50	No		39
141,258	141,258		4.03			48.05	No		40
122,709	122,709		8.27			29.20	No		41
113,440	113,440		11.45				No		42
106,376	106,376		2.83				No		43
33,900	33,900		4.50				Yes		44
24,598	24,598		35.13				No		45
1,639,128	1,639,128		5.61				Yes		46
279,619	279,619		4.04			0.30	No		47
256,253	256,253	45,028	4.43	33,342	23,982	30.50	No		48
3,199,207	2,954,021	1,200	4.70	36,515	36,235	31.15	No		49
124,499	124,499	245,180	2.54				Yes		50
438,879	438,879		4.08	12,321	12,321	49.74	No		51
198,835	192,000	1,835	4.24	40,955	40,955	63.91	No		52
788,650	760,822	16,818	5.73	104,162	101,769	41.17	Yes		53
301,138	261,138		6.17	46,630	46,630	47.80	Yes		54
189,650	189,650		2.80	19,710	19,710	28.92	Yes		55
182,645	182,645		2.16	18,147	18,147	21.74	No		56
25,680	25,680		3.77				No		57
66,640	66,640		4.30	8,330	8,330	34.40	No		58
52,517	49,172	3,345	1.96	3,000	3,000	32.10	No		59
23,466	23,466		1.56	4,992	4,992	7.96	Yes		60
208,000	208,000		3.85	32,850	32,850	24.35	No		61
267,169	267,169		3.10				No		62
185,776	185,776		1.76	12,306	12,306	26.50	Yes		63
168,636	159,276	8,760	1.34	13,805	13,273	16.04	Yes		64
140,022	140,022		4.06	14,489	14,489	39.22	No		65
124,502	124,502		3.46	13,532	13,532	31.41	No		66
172,859	172,859		6.72	19,344	19,344	60.05	Yes		67
380,000	355,000	25,000	2.37	40,300	35,800	23.50	No		68
1,716,980	1,716,980		4.76	187,902	187,902	43.48	Yes		69
162,976	162,976		4.65	13,753	13,753	58.09	Yes		70
27,084	27,084		1.09	2,984	2,984	14.48	No		71
639,253	639,253		4.56				No		72
288,281	288,281		4.62	21,276	21,276	44.57	Yes		73
225,256	225,256		2.50	21,276	21,276	26.22	Yes		74
81,607,670	81,263,351	404,419	5.22	10,366,167	10,314,133	41.14	Yes		75
415,244	415,244		3.22	42,432	42,432	31.49	No		76
535,471	535,471		2.81	53,903	53,903	27.36	No		77
1,150,654	1,144,803	14,851	3.01	82,575	79,865	43.19	Yes		78
846,955	846,955		2.72	80,540	80,540	28.64	No		79
585,259	585,259		4.55	46,586	46,586	57.30	No		80
436,415	404,087	2,328	3.68	48,654	48,654	57.52	No		81
373,199	368,071	5,128	2.41	18,873	17,758	49.99	No		82
214,806	214,806		4.37	19,554	19,554	48.00	No		83
132,540	132,540		1.04	16,555	16,555	32.33	No		84
35,654,594	35,409,408	245,186	5.67	4,150,132	4,154,007	48.31	Yes		85
21,740	21,740		25.50	9,490	9,490	58.46	No		86
10,367	10,367		34.43				No		87
31,485	18,825	12,660	46.62				No		88
2,771,559	2,771,559		7.15	276,124	276,124	71.79	Yes		89
276,679	276,679		3.51	28,743	28,743	33.75	No		90
42,000	42,000		3.21	5,940	5,940	22.65	No		91
1,154,171	1,154,171		4.75	128,115	128,115	42.41	Yes		92
484,172	484,172		5.26	57,487	57,487	44.28	Yes		93
2,305,748	2,305,748		6.19	288,219	288,219	47.35	Yes		94
38,530	38,530		1.81	5,821	5,821	12.01	No		95
25,424	25,424		3.68	3,000	3,000	31.20	No		96
693,119	693,119		5.23				No		97
194,772	194,772		1.91	29,161	29,161	12.70	Yes		98
447,085	447,085		3.10	49,030	49,030	32.41	Yes		99
3,989,733	3,986,733		5.31	556,352	556,352	38.07	Yes		100
1,459,730	1,387,182	72,548	2.45				No		101
273,810	273,810		5.10				No		102
483,000	483,000		2.97				No		103
56,563	56,563		5.75	9,083	9,083	35.81	No		104
116,500	116,500		3.17				No		105
172,561	172,561		3.99	16,412	16,412	42.00	No		106
572,471	572,471		4.92	61,330	61,330	45.90	Yes		107
658,476	658,476		4.10	65,510	65,510	41.18	No		108
216,875	213,119	3,756	3.41				Yes		109
448,000	448,000		5.10	52,560	52,560	43.47	No		110
281,886	287,430	27,454	1.53	21,368	18,637	21.32	No		111
401,845	398,452	3,393	6.96	55,804	55,043	50.39	No		112
214,010	210,380	3,630	4.62	33,580	32,850	33.82	Yes		113
301,949	301,949		5.54	41,980	41,980	33.63	Yes		114
2,947,213	2,947,213		6.68	386,216	386,216	50.98	No		115
178,936	178,936		6.67	21,000	21,000	49.76	No		116
109,059	109,059		5.42				No		117
101,147	101,117		4.83				No		118
556,975	556,975		4.25				No		119
101,301	101,301		3.73				No		120
222,464	222,464		3.48				No		121
1,308,298	1,282,007	26,291	3.07	155,780	152,215	3.574	Yes		122
15,737,978	15,335,805	402,173	5.95	1,782,797	1,729,046	53,661	52.47		
214,000	191,000	23,000	6.11	16,350	11,800	1,530	78.79	Yes	1
185,516	185,516		4.71	19,640	19,640		44.47	No	2
13,322,013	13,073,304	248,709	6.12	1,623,655	1,604,042	29,613	50.90	Yes	3
1,384,124	1,361,617	22,507	5.26	66,875	60,557	118.80	Yes		4
855,283	842,216	13,067	5.06	50,187	40,007	16,180	32.71	Yes	5
77,122	77,122		5.92						

* For seven and one-half months only.

* Train mileage.

* For three months only.

* Passenger-car hours reported for 5 companies only, representing 90,715,022 fare passengers carried.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED.				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Free.		
SOUTH CAROLINA.							
	Total for state.....	19,277,036	15,094,635	2,104,371	478,030	30	110,590
1	Anderson Traction.....	996,113	819,727	140,777	32,609	1	43,930
2	Augusta and Aiken.....	1,940,924	1,960,924				77,876
3	Charleston Consolidated Railway, Gas and Electric.....	8,650,767	7,389,265	975,918	285,564	21	203,955
4	Columbia Electric Street Railway, Light and Power.....	4,172,740	3,284,977	769,300	121,283	2	153,074
5	Greenville Traction.....	1,555,828	1,375,915	147,719	32,694	3	112,479
6	Rock Hill Water, etc., Light and Railway.....	25,000	25,000				10,067
7	Spartanburg Railway, Gas and Electric.....	919,564	839,107	73,457	7,000	3	52,444
SOUTH DAKOTA.							
	Total for state.....	125,515	125,515				25,103
1	Sioux Falls Traction.....	125,515	125,515				25,103
TENNESSEE.							
	Total for state.....	90,266,212	73,746,986	22,829,867	2,691,359	42	247,880
1	Bristol Belt Line.....	372,363	361,095	3,000	6,768	1	76,209
2	Chattanooga Railways.....	12,309,444	9,000,230	2,137,472	421,742	13	223,410
3	Clarksville Railway and Light.....	328,068	323,772	4,296	4,296		57,816
4	Jackson Railway and Light.....	1,121,775	919,420	200,855	1,500	1	122,560
5	Johnson City Traction.....	621,609	601,460		20,000		146,048
6	Knoxville Railway and Light.....	9,340,189	7,637,221	1,244,983	458,085	2	194,579
7	Lookout Mountain Railway.....	350,045	346,436		3,609		60,267
8	Memphis Street Railway.....	40,015,027	31,843,898	7,429,876	741,284	20	290,573
9	Nashville Railway and Light.....	34,909,841	22,022,584	11,825,181	1,034,076	5	281,032
TEXAS.							
	Total for state.....	197,005,169	81,496,650	14,342,422	1,166,007	127	198,439
1	Austin Electric Railway.....	3,163,769	2,937,162	209,806	16,800	3	193,107
2	Brenham Traction.....	3,082,296	3,294,915	372,278	25,103	5	268,973
3	Bonham Electric Railway, Light and Power.....	82,534	82,534				33,014
4	Corpus Christi.....	338,301	338,301				90,348
5	Dallas Consolidated.....	10,945,755	8,308,805	2,229,781	317,568	21	195,950
6	Metropolitan Street Railway.....	2,418,720	1,948,267	465,329	65,124	13	160,483
7	Rapid Transit.....	3,109,503	2,568,969	475,254	65,340	9	199,147
8	Denison and Sherman.....	1,227,984	1,227,984				75,568
9	Denison Interurban Railway and Power Plant.....	418,331	18,331				5,205
10	El Paso Electric Railway.....	6,574,570	5,217,240	1,357,330		1	201,050
11	Citizens Railway and Light.....	1,872,507	1,872,507				130,807
12	Northern Texas Traction.....	19,854,217	17,081,911	2,410,344	351,962	20	228,949
13	Galveston Electric.....	6,485,877	6,263,751	222,326		20	187,028
14	Houston Electric.....	17,447,821	14,045,142	3,332,679	72,000	10	308,640
15	Laredo Electric and Railway.....	296,833	296,833				38,804
16	Longview and Junction.....	52,290	52,290				69,402
17	Mineral Wells and Lakewood Park.....	50,000	50,000				22,222
18	Paris Traction.....	601,304	619,500	81,535		1	99,614
19	San Antonio Traction.....	15,436,793	12,103,258	2,987,160	250,375	14	213,363
20	Seguin Traction.....	24,000	24,000				29,440
21	Belton and Temple Traction.....	1,000,117	698,492		1,625		69,873
22	Citizens Railway.....	2,246,624	1,997,024	249,600		1	130,770
23	Waxahachie Street Railway.....	131,734	131,734				27,792
UTAH.							
	Total for state.....	26,430,903	21,105,491	5,055,462	270,000	35	172,233
1	Ogden Rapid Transit.....	2,643,158	2,154,775	488,383		3	101,401
2	Salt Lake and Utah Valley.....	51,270	51,270				16,868
3	Utah Light and Railway.....	23,736,595	18,899,437	4,567,079	270,000	32	192,361
VERMONT.							
	Total for state.....	7,460,690	7,103,682	357,508		7	57,140
1	Barre and Montpelier.....	965,335	918,100	17,435		1	105,154
2	Bellows Falls and Saxtons River.....	105,000	105,000				29,817
3	Burlington and North Adams.....	522,216	522,216				17,015
4	Twin State Gas and Electric.....	274,000	250,000				50,000
5	Burlington Traction.....	2,084,093	1,895,453	188,540		3	137,440
6	Rutland Railway, Light and Power.....	2,341,672	2,298,747	131,125		2	91,003
7	St. Albans Street Railway.....	438,500	420,000	18,500		1	31,311
8	Springfield Electric.....	115,118	115,118				13,836
9	Mount Mansfield Electric.....	104,000	104,000				9,272
10	Military Post Street Railway.....	443,830	443,830				84,702
VIRGINIA.							
	Total for state.....	188,614,969	77,300,268	9,531,819	1,782,913	165	149,940
1	Washington, Arlington and Falls Church.....	1,442,658	1,349,653	91,600	1,505	1	52,251
2	Charlottesville and Albemarle.....	980,654	580,629		19,425		168,268
3	Danville Railway and Electric.....	2,317,530	1,922,629	339,944	55,586	3	286,061
4	Hampton Roads Traction.....	490,670	489,412	(*)	7,267	4	40,149
5	Lynchburg Traction and Light.....	4,094,861	3,894,861	798,000		4	276,402
6	Crittenton Railway, Light and Power.....	1,066,574	1,084,284	(*)	11,200	4	130,323
7	Newport News and Old Point Railway and Electric.....	4,394,589	4,248,666	(*)	145,283	11	167,640
8	Norfolk City and Suburban.....	126,500	67,872	58,637		1	18,859
9	Norfolk and Southern.....	1,302,729	1,214,752		87,977		19,427

* For three months only.

† Includes 1 company operating part of year.

‡ Passenger-car hours reported for 19 companies only, representing 80,667,514 fare passengers carried.

§ For two months only.

|| Estimated.

HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.			Fare pas- sengers per car mile.	CAR HOURS.			Fare pas- sengers per car hour.	Mail car- ried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.		Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.				
3,825,478	3,805,370	20,108	4.12	440,218	435,618	4,600	35.95		7	
288,449	288,449		3.05	30,650	30,650		26.74	No.	1	1
418,081	402,973	15,108	4.87	25,110	21,516	3,600	91.14	Yes.	1	2
1,583,858	1,583,858		4.06	109,180	199,196		37.10	Yes.	2	3
910,548	916,548		3.54	106,735	106,735		30.78	Yes.	2	4
245,511	245,511		2.98	40,206	40,206		24.21	No.		5
10,050	10,050		2.28	3,650	3,650		6.85	No.		6
280,081	275,081	5,000	3.05	34,675	34,675		24.20	Yes.	1	7
48,000	48,000		2.58	3,312	3,312		37.90			
48,000	48,000		2.58	3,312	3,312		37.90	No.		1
15,928,762	15,884,612	44,150	4.04	1,867,141	1,867,302	9,789	39.70		6	
132,405	132,405		2.73	23,341	23,340		15.30	Yes.	1	1
2,207,045	2,204,545	2,500	4.27	204,400	202,800	1,600	26.70	Yes.	1	2
130,254	130,254		2.49	21,709	21,709		14.91	No.	1	3
202,550	202,400	150	3.04	38,655	38,880	75	23.65	No.	1	4
171,250	164,250	7,000	3.06	17,399	16,425	784	36.02	Yes.	1	5
1,658,161	1,658,161		4.61	203,084	203,084		37.61	Yes.	2	6
57,036	57,536	500	6.13	5,775	5,475	300	63.28	Yes.		7
6,096,539	6,096,539		4.83	751,083	751,083		42.30	Yes.		8
4,503,432	4,503,432		4.80	539,905	539,905	5,000	41.30	Yes.	1	9
18,805,259	18,500,583	304,716	4.41	2,173,377	2,140,405	32,972	37.66		13	
776,031	776,031		3.78	97,000	97,000		30.25	No.	1	1
623,277	623,277		5.29	80,500	80,500		40.93	No.		2
27,375	27,375		3.01					No.	1	3
73,730	73,730		4.59	13,140	13,140		26.75	No.		4
1,959,221	1,944,221	15,000	4.32	241,919	238,919	3,000	35.15	Yes.		5
431,594	431,594		4.51	55,135	55,135		35.34	Yes.		6
520,039	520,039		4.93	73,514	73,514		34.95	Yes.		7
454,405	408,874	45,531	3.33	61,343	54,795	6,547	22.41	No.	3	8
21,000	21,000		.85	1,980	1,980		9.26	No.	1	9
997,372	997,372		5.23	120,858	120,858		43.17	Yes.		10
1,151,056	1,144,272	6,784	1.64	85,020	82,270	2,750	22.76	No.		11
3,635,339	3,494,682	140,657	4.90	383,366	374,041	9,325	45.67	Yes.	1	12
1,414,285	1,400,341	13,944	4.44	170,102	170,102		36.82	No.		13
2,340,257	2,340,257		6.00	267,550	267,550		48.84	Yes.	1	14
118,410	118,410		2.00	1,635	1,635		28.50	No.		15
5,110	5,110		10.24					Yes.		16
25,000	25,000		2.00					No.	1	17
146,000	146,000		3.56					No.		18
3,099,538	3,072,438	27,100	3.97	340,279	335,779	4,500	36.31	Yes.		19
7,300	3,650	3,650	3.96	1,460	1,460		16.46	No.		20
228,135	217,187	10,948	4.03	40,630	37,740	2,890	26.46	No.	1	21
608,025	608,025		2.90	91,950	91,950		21.72	No.	1	22
61,500	61,500		2.14	21,800	21,800		6.04	No.	1	23
4,540,085	4,453,308	86,777	4.74	6,570	6,570		7.81			
754,258	753,000	1,258	2.80					Yes.		1
20,280	20,280		1.95	6,570	6,570		7.81	No.		2
3,759,547	3,674,118	85,429	5.14					Yes.		3
1,910,853	1,771,987	138,866	4.01	37,003	35,763	1,240	27.77		6	
242,206	242,206		3.91					No.	2	1
99,339	92,610	7,729	2.12	10,583	10,583		18.43	Yes.	1	2
180,558	179,282	1,276	2.91					No.		3
100,000	100,000		2.30	12,000	12,000		20.85	Yes.	1	4
421,575	421,575		4.50					Yes.		5
350,754	350,754		6.30					No.	1	6
152,801	140,694	12,107	2.99					Yes.	1	7
71,590	70,590	1,000	1.63					Yes.		8
45,700	28,450	17,250	3.67	4,570	4,570	1,240	31.32	Yes.		9
146,400	146,400		3.03	9,850	9,850		43.08	Yes.		10
18,096,451	17,900,718	195,733	4.30	2,052,114	2,027,567	24,547	37.53		12	
647,320	623,950	23,370	2.16	58,125	51,405	6,720	26.22	Yes.		1
185,940	185,940		3.12	22,630	22,630		26.66	No.		2
347,550	347,550		5.53	42,525	40,525		38.92	Yes.	1	3
290,808	290,398	410	1.71	24,045	24,045		20.35	No.		4
655,407	655,407		5.90	97,745	97,745		39.56	Yes.		5
283,540	283,540		3.82	39,019	39,019		27.79	No.	1	6
832,255	832,255		5.10	103,704	100,029	3,675	42.48	Yes.		7
43,435	43,435		1.56	5,296	5,296		12.82	No.	1	8
814,844	747,723	67,121	1.62					Yes.		9

* Passenger-car hours reported for 1 company only, representing 51,270 fare passengers carried.

† Passenger-car hours reported for 4 companies only, representing 993,148 fare passengers carried.

* Passenger-car hours reported for 22 companies only, representing 76,085,516 fare passengers carried.

* Not reported.

TABLE 187.—PASSENGERS, CAR MILEAGE, CAR

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	NUMBER OF PASSENGERS CARRIED				Transfer points.	Fare passengers per mile of track.
		Total.	Fare.	Transfer.	Fare.		
VIRGINIA—Continued							
10	Norfolk and Ocean View	1,455,176	1,402,186		52,990		100,228
11	Norfolk and Atlantic Terminal	4,035,676	4,142,911		222,765		215,818
12	Norfolk and Portsmouth Traction	18,246,707	16,024,124	1,772,604	449,979	29	153,902
13	Radford Water Power	194,025	179,753		13,272		68,347
14	Richmond and Chesapeake Bay	157,545	54,780		745		3,543
15	Virginia Passenger and Power	2,499,025	2,199,853		271,585	12	121,271
16	Richmond Passenger and Power	21,397,178	17,097,861	4,040,577	258,740	23	311,153
17	Richmond Traction	13,986,857	12,750,203	1,070,824	164,691	12	264,602
18	Richmond and Petersburg Electric	710,726	792,005		8,081		3,024
19	Roanoke Railway and Electric	4,026,171	3,329,943	704,145	111,093	1	153,493
20	Blue Ridge Light and Power	242,992	242,892			2	46,265
21	Tazewell Street Railway	128,912	128,912				64,456
22	Washington, Alexandria and Mt. Vernon	2,924,345	2,802,677		122,268		99,386
23	Great Falls and Old Dominion	1,660,602	1,136,030	494,002	30,570	1	40,086
WASHINGTON							
Total for state		142,406,001	110,595,629	29,951,906	2,037,415	112	144,504
1	Grays Harbor Railway	1,203,763	1,101,043	25,656	71,444	2	95,435
2	Whitcomb County Railway	4,159,500	3,269,216	746,132	204,152	3	176,234
3	Puget Sound International Railway	2,840,085	2,324,246	515,839		6	116,620
4	Olympia Light and Power	404,113	464,113				105,033
5	Loyal Railway	84,045	83,365		1,220		35,483
6	Seattle- Everett Interurban	215,470	215,000		470		13,651
7	Seattle Electric	78,470,000	58,626,387	19,424,043	410,440	45	376,665
8	Seattle, Renton and Southern	2,846,629	2,842,879		3,650		145,749
9	Washington Water Power	17,008,952	14,968,069	2,336,256	304,597	23	149,041
10	Spokane and Inland Empire	6,955,412	5,476,412	1,000,000	415,920	6	24,647
11	Pacific Traction	425,454	523,494		5,460	1	13,604
12	Puget Sound Electric	2,750,000	2,499,012	233,726	63,348	1	34,508
13	Tacoma Railway and Power	24,130,719	18,033,822	5,581,340	515,357	25	109,682
14	Walla Walla Valley Traction	1,124,999	1,003,512		31,477		61,850
Total for state		44,616,042	42,749,821	1,143,122	683,099	25	161,071
WEST VIRGINIA							
1	Bluestone Traction	700,000	700,000				181,818
2	Kanawha Valley Traction	2,424,823	2,107,928	295,123	21,772	7	180,002
3	Fairmont and Clarksburg	6,659,640	6,485,474	54,186	120,000	4	152,884
4	Cameron Interstate Railway	6,261,069	5,829,909	255,500	182,560	2	180,502
5	Mannington Light and Power	78,000	78,000		2,000		70,000
6	Union Utility	387,194	384,649		3,145		62,651
7	Sharon Railway	362,739	355,439		7,300		90,673
8	Newell Street Railway	657,222	640,120		16,802		215,449
9	Wetzel and Tyler Railway	404,500	403,000		1,500		33,500
10	Parkersburg, Marietta and Interurban	4,559,540	4,517,310	24,000	18,250	2	133,648
11	Tri-State Traction	1,147,195	1,147,195				143,390
12	City Railway	2,445,097	2,303,117	102,288	39,692	3	215,044
13	Wheeling Traction	14,055,870	13,091,230	399,630	105,000	5	255,274
14	City and Elm Grove	3,044,813	3,014,700	27,375	102,738	1	133,849
15	Pan Handle Traction	327,400	300,000	25,000	2,400	1	20,172
Total for state		132,389,221	102,771,360	29,806,520	609,352	92	173,997
WISCONSIN							
1	Wisconsin Traction, Light, Heat and Power	1,578,118	1,479,261	98,857		1	75,550
2	Ashland Light, Power and Street Railway	463,164	463,166				68,113
3	Beloit Traction	305,790	303,050	2,740		1	45,941
4	Milwaukee Northern	3,123,030	117,839		5,200		3,782
5	Chippewa Valley Railway, Light and Power	1,964,840	1,679,844	271,740	12,006	2	74,426
6	Eastern Wisconsin Railway and Light	1,000,784	1,000,784			1	48,841
7	Green Bay Traction	2,354,120	1,292,708	240,340	21,034	1	70,727
8	Janesville Street Railway	489,000	300,000	25,000	54,000	1	368,504
9	Kenosha Electric Railway	2,123,817	2,100,817	25,000		2	175,637
10	La Crosse City Railway	3,154,940	2,574,838	528,667	51,415	4	33,536
11	La Crosse and Oshkosh	91,237	80,541		1,696		241,032
12	Southern Wisconsin Railway	3,346,632	3,107,592	239,000		6	75,558
13	Mantowoc and Northern	673,732	667,832	5,900		1	110,301
14	Merrill Railway and Lighting	170,966	170,966				588,584
15	Milwaukee Electric Railway and Light	100,929,311	74,726,783	25,800,012	391,516	54	45,740
16	Milwaukee Light, Heat and Traction	9,524,636	8,208,670	1,188,405	67,561	11	44,626
17	Winnebago Traction	2,227,673	1,789,495	293,472	44,706	6	44,340
18	Shelbygan Light, Power and Railway	1,219,933	1,130,269	70,416	19,228	1	29,451
19	Waupaca Electric Light and Railway	145,782	115,782				71,855
20	Wausau Street Railroad	418,106	418,106			1	
Total for state		15,258,393	12,614,076	2,466,537	177,780	10	287,795
OUTLYING DISTRICTS.							
HAWAII							
Total for territory		9,967,087	7,358,278	2,466,537	142,272	10	281,818
1	Honolulu Rapid Transit and Land	9,967,087	7,358,278	2,466,537	142,272	10	281,818
PORTO RICO							
Total		5,291,306	5,255,798		35,508		296,603
1	Tramway Stock	520,279	510,279		10,000		193,028
2	Ponce Railway and Light	991,892	991,793		1,000		19,760
3	San Juan Light and Transit	3,840,135	3,815,726		24,400		386,508

* Estimated.

* For two months only.

* Not reported.

* Includes 1 company operating part of year.

* For five months only.

GENERAL TABLES.

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HOURS, ETC., BY COMPANIES: 1907—Continued.

CAR MILEAGE.				CAR HOURS.				Mail car-ried.	Pleasure parks owned or operated.	Number.
Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas-sengers per car mile.	Total.	Passenger cars.	Express, freight, mail, and work cars, including electric and steam locomotives.	Fare pas-sengers per car hour.			
1282,213	1282,213		4.97	140,028	140,028		28.60	No.		10
809,539	809,539		5.48	80,649	80,649		54.97	Yes.		11
3,786,724	3,786,724		4.23	448,736	448,736		35.71	Yes.		12
61,407	61,407		2.93	5,856	5,856		20.70	No.		13
229,232	229,232		1.87	11,943	1,943		28.19	No.		14
753,505	753,505		2.92	81,457	81,457		27.01	No.		15
3,225,910	3,225,910		5.30	403,957	403,957		42.33	Yes.		16
2,413,440	2,413,440		5.28	296,329	296,329		43.02	Yes.		17
400,758	400,758		1.71	27,477	27,477		25.57	No.		18
712,492	712,492	9,796	4.73	86,364	83,364	2,900	39.74	No.		19
120,000	120,000		2.02	21,940	21,940		11.09	No.		20
31,100	31,100		4.15	4,873			26.45	No.		21
921,823	914,095	7,728	3.07	107,664	97,269	10,395	28.81	Yes.		22
422,540	414,240	8,300	2.74	35,748	34,748	1,000	32.69	No.		23
924,364,214	22,943,472	1,420,742	4.82	13,006,217	2,520,150	185,067	39.18			10
261,536	261,536		4.23	25,210	25,210		43.91	No.		1
715,146	658,394	57,052	4.87	92,586	80,773	11,813	38.73	Yes.		2
580,863	580,863		4.00	54,552	54,552		42.61	Yes.		3
148,373	148,373		3.13	14,965	14,965		31.01	Yes.		4
15,439	15,439		5.40	5,475	5,475		15.23	No.		5
170,852	143,376	27,576	1.50	12,161	9,384	2,777	22.91	No.		6
10,782,581	10,442,977	339,604	5.61	1,421,716	1,383,911	37,805	42.36	Yes.		7
585,826	548,386	37,440	5.14	97,000	87,000	10,000	32.68	Yes.		8
3,111,563	2,096,215	25,348	4.66	298,820	303,972	4,848	36.47	Yes.		9
1,826,287	1,044,000	181,027	3.33	304,900	274,000	30,900	19.98	Yes.		10
110,896	110,896	500	2.02	13,910	13,910	50	10.13	No.		11
2,230,175	1,633,645	596,530	1.49	157,628	102,850	54,778	23.71	No.		12
3,624,391	3,471,240	153,151	5.20	389,782	355,310	34,472	50.76	Yes.		13
209,896	197,982	11,914	5.52	20,812	18,798	2,024	58.20	No.		14
8,206,777	8,247,777	49,000	5.15	550,914	545,646	5,268	39.65			13
100,000	100,000		7.00	13,140	13,140		53.27	No.		1
517,500	547,500		3.85	80,300	80,300		26.25	Yes.		2
679,833	678,333	1,500	7.34					Yes.		3
1,231,281	1,211,761	19,520	4.81	131,400	127,800	3,600	45.57	No.		4
33,000	33,000		2.30	5,400	5,400		14.07	No.		5
137,495	137,495		2.79	13,749	13,749		27.93	No.		6
49,275	49,275		5.21	5,840	5,840		60.86	No.		7
121,754	121,754		5.26					Yes.		8
114,509	112,420	2,089	3.58	10,428	10,220	208	39.43	No.		9
1,044,520	1,029,740	14,780	4.39	119,720	118,260	1,460	38.20	No.		10
288,753	288,753		3.97	28,411	28,411		50.10	No.		11
544,340	544,340		4.23	72,270	72,270		31.87	No.		12
2,044,044	2,038,000	6,044	6.52					Yes.		13
744,278	734,358	10,920	5.20	70,056	70,056		54.45	No.		14
391,046	391,046		1.28					No.		15
21,799,284	21,722,884	76,400	4.73	2,233,528	2,222,349	11,177	44.86			5
461,173	461,173		3.21	46,640	46,640		31.72	No.		1
247,843	247,843		1.87	32,128	32,128		14.42	No.		2
55,691	55,691		5.50	5,903	5,903		54.19	No.		3
79,139	76,308	2,831	1.54	23,218	3,109	100	37.90	No.		4
491,344	491,344		3.42	51,828	51,828		32.41	No.		5
516,493	516,493		2.41	44,097	44,097		27.00	Yes.		6
925,037	898,967	26,070	2.22	92,304	86,364	6,200	23.07	No.		7
146,258	146,258		2.46	23,358	23,358		15.41	No.		8
191,167	185,374	5,793	11.31	27,310	26,492	828	79.33	No.		9
758,864	758,864		3.39					No.		10
68,032	68,032		1.32					No.		11
691,063	689,063	1,800	4.51	81,804	81,030	774	38.35	No.		12
301,650	301,650		2.21	24,820	24,820		26.91	Yes.		13
95,000	95,000		1.80	15,840	15,840		10.79	No.		14
12,294,354	12,294,354		6.08	1,383,653	1,383,653		54.00	No.		15
2,811,084	2,811,084		2.94	242,200	242,200		34.14	Yes.		16
1,025,675	1,025,675		1.74	115,906	115,906		15.44	No.		17
463,041	421,932	38,109	2.66	38,587	35,411	3,176	31.92	Yes.		18
43,321	43,321		3.86	3,870	3,870		37.67	No.		19
133,264	133,264		3.14					No.		20
2,399,516	2,391,920	7,596	5.33	276,216	240,505	35,711	46.80			2
1,575,918	1,548,960	26,958	4.75	162,250	158,195	4,055	46.51			1
1,575,918	1,548,960	26,958	4.75	162,250	158,195	4,055	46.51	No.		1
823,508	817,951	5,557	6.43	113,906	111,310	2,596	47.22			1
102,200	102,200		4.99	21,900	21,900		23.30	No.		1
173,051	167,804	5,247	5.55	22,501	19,905	2,596	46.71	No.		2
548,347	548,347		6.96	69,503	69,503		51.00	Yes.		3

* Passenger-car hours reported for 11 companies only, representing 21,432,707 fare passengers carried.

* Includes 2 companies operating part of year.

* Passenger-car hours reported for 17 companies only, representing 69,688,785 fare passengers carried.

* For seven months only.

STREET AND ELECTRIC RAILWAYS.

SUPPLEMENTARY TABLE 1.—STEAM TURBINES, GAS ENGINES, AND WATER WHEELS.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	STEAM TURBINES.						GAS ENGINES.			WATER WHEELS.													
		Total.		500 H. P. or under.	Over 500 H. P. and under 1,000 H. P.	1,000 H. P. and under 2,000 H. P.	2,000 H. P. and over.	Total.	500 H. P. and under.	Over 500 H. P.	Total.	500 H. P. and under.	Over 500 H. P.											
		No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.									
UNITED STATES.....		252	535,404	23	3,798	70	49,491	51	69,787	108	412,338	41	16,335	34	9,435	17	17,900	228	91,991	172	32,703	56	159,198	
ALABAMA.																								
Total for state.....		7	12,450	1	500	2	1,500	2	2,950	2	8,000													
1	Anniston Electric and Gas.....	1	500	1	500																			
2	Birmingham Railway, Light and Power.....	2	8,000							2	8,000													
3	Alabama City, Gadsden and Attalla.	2	1,500			2	1,500																	
9	Sheffield Co.....	2	2,950					2	2,950															
ARKANSAS.																								
Total for state.....		2	2,100	1	100					1	2,000													
4	Little Rock Railway and Electric...	2	2,100	1	100					1	2,000													
CALIFORNIA.																								
Total for state.....		4	8,700			2	1,500	1	1,500	1	3,700	2	100	2	100			2	200	2	200			
12	Los Angeles Pacific.....	1	3,700							1	3,700													
18	Ontario and San Antonio Heights.....																	2	200	2	200			
27	San Diego Electric.....	3	3,000			2	1,500	1	1,500															
34	San Jose and Santa Clara County.....											2	100	2	100									
COLORADO.																								
Total for state.....		1	2,750							1	2,750							5	1,980	5	1,980			
3	Colorado Springs and Cripple Creek.....																	1	280	1	280			
4	Denver City Tramway.....	1	2,750							1	2,750													
10	Pueblo and Suburban Traction and Lighting.....																	4	1,000	4	1,000			
CONNECTICUT.																								
Total for state.....																		3	1,938			3	1,938	
6	New York, New Haven and Hartford Railroad.....																	3	1,938			3	1,938	
DISTRICT OF COLUMBIA.																								
Total for district.....		2	4,500							2	4,500													
4	Capital Traction.....	2	4,500							2	4,500													
FLORIDA.																								
Total for state.....		2	1,908	1	408			1	1,500			5	825	5	825			8	1,400	8	1,400			
5	Key West Electric.....																							
6	Pensacola Electric.....	1	408	1	408																			
10	Tampa Electric.....	1	1,500					1	1,500									8	1,400	8	1,400			
GEORGIA.																								
Total for state.....		7	11,070			4	2,850			3	8,250	1	3,000			1	3,000	13	5,797	9	3,397	4	2,400	
1	Athens Electric Railway.....	1	670			1	670											5	2,007	3	807	2	1,200	
2	Georgia Railway and Electric.....	2	6,000							2	6,000	1	3,000			1	3,000							
4	Augusta Railway and Electric.....																	8	2,530					
7	Gainesville Electric Railway.....																	2	1,200			2	1,200	
8	Macon Railway and Light.....	1	2,250							1	2,250													
9	Rome Railway and Light.....	2	1,400			2	1,400																	
10	Savannah Electric.....	1	750			1	750																	
ILLINOIS.																								
Total for state.....		7	11,396			1	670	4	5,240	2	3,400							6	1,153	6	1,153			
7	Peoria, Bloomington and Champaign.....	1	2,946							1	2,946													
27	Chicago and Milwaukee.....	1	1,350					1	1,350															
36	East St. Louis and Suburban	3	3,000			1	670	2	2,410															
38	Freeport Railway, Light and Power.																	4	600	1	600			
46	St. Louis and North Eastern	1	2,800							1	2,800													
59	Northern Illinois Light and Traction.																	2	553	2	553			
67	St. Louis and Springfield.....	1	1,500					1	1,500															
INDIANA.																								
Total for state.....		15	24,770			2	1,270	6	8,000	7	15,500													
11	Fort Wayne and Wabash Valley.....	3	5,100			1	600			2	4,500													
14	Indianapolis Traction and Terminal.	2	4,000							2	4,000													
15	Terre Haute, Indianapolis and Eastern.....	4	7,670			1	670			3	7,000													
16	Indianapolis and Cincinnati.....	2	3,000							2	3,000													
18	Toledo and Chicago Interurban.....	2	2,000							2	2,000													
19	Kokomo, Marion and Western.....	2	3,000							2	3,000													

¹ Includes 23 turbines of 179,200 H. P. in the class 5,000 H. P. and over.

² Includes 2 gas engines of 5,000 H. P. in the class 2,000 H. P. and under 5,000 H. P.

³ Includes 35 water wheels of 42,710 H. P. in the class 1,000 H. P. and under 2,000 H. P. and 1 of 3,300 H. P.

SUPPLEMENTARY TABLE 1.—STEAM TURBINES, GAS ENGINES, AND WATER WHEELS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	STEAM TURBINES.						GAS ENGINES.						WATER WHEELS.										
		Total.		500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		Total.		500 H. P. and under.		Over 500 H. P.		Total.		500 H. P. and under.		Over 500 H. P.		
		No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	
	IOWA.																							
	Total for state.....	9	7,900			7	4,700	2	3,200															
3	Fort Dodge, Des Moines and Southern	2	3,200					2	3,200															
10	Iowa and Illinois Railway	2	1,200			2	1,200																	
14	Union Electric	5	3,500			5	3,500																	
	KANSAS.																							
	Total for state.....									3	1,125	1	25	2	1,100									
6	Union Traction.....									3	1,125	1	25	2	1,100									
	KENTUCKY.																							
	Total for state.....	2	5,200					1	1,200	1	4,000													
4	Lexington Railway.....	1	1,200					1	1,200															
7	Louisville Railway.....	1	4,000							1	4,000													
	LOUISIANA.																							
	Total for state.....	7	10,375	3	175					4	10,200													
7	New Orleans Railway and Light.....	7	10,375	3	175					4	10,200													
	MAINE.																							
	Total for state.....	3	1,500			2	1,500									32	7,000	29	6,000	3	2,000			
1	Bangor Railway and Electric															15	2,300	15	2,300					
6	Benton and Fairfield.....															2	500	2	500					
10	Portland Railroad.....	2	1,500			2	1,500																	
13	Atlantic Shore Line.....															2	2,800	2	800	2	2,000			
16	Waterville and Fairfield.....															7	1,250	7	1,250					
17	Waterville and Oakland.....															3	150	3	150					
	MARYLAND.																							
	Total for state.....	1	7,500							1	7,500													
1	United Railways.....	1	7,500							1	7,500													
	MASSACHUSETTS.																							
	Total for state.....	10	22,250			3	2,250			7	20,000	5	2,700	3	1,500	2	1,200	15	1,625	15	1,625			
5	Old Colony Street Railway.....	8	17,250			3	2,250			5	15,000													
7	Boston Elevated Railway.....	1	2,000							1	2,000	5	2,700	3	1,500	2	1,200							
12	Conway Electric Street Railway.....															2	300	2	300					
15	Connecticut Valley Street Railway.....															4	400	4	400					
19	Fitchburg and Lowmister.....															3	375	3	375					
20	Boston and Worcester.....	1	3,000							1	3,000													
40	Shelburne Falls and Colrain.....															2	250	2	250					
60	Worcester Consolidated.....															3	225	3	225					
61	Worcester and Blackstone Valley.....															1	75	1	75					
	MICHIGAN.																							
	Total for state.....	5	9,517			2	1,417	2	3,600	1	4,500													
2	Bay City Traction.....	1	657			1	657																	
4	Detroit United Railway.....	1	4,500							1	4,500													
5	Detroit and Port Huron Shore Line.....	1	1,800							1	1,800													
7	Detroit, Monroe and Toledo Short Line.....	1	1,800							1	1,800													
14	Marquette County Gas and Electric.....	1	750			1	750																	
	MINNESOTA.																							
	Total for state.....	4	17,500			2	1,500			12	16,000							12	10,250	2	250	10	10,000	
3	Twin City Rapid Transit.....	2	10,000							2	10,000													
5	Winona Railway and Light.....	2	1,500			2	1,500																	
	MISSISSIPPI.																							
	Total for state.....	5	4,200			4	2,700	1	1,500															
3	Gulfport and Mississippi Coast.....	2	1,500			2	1,500																	
4	Jackson Electric Railway, Light and Power.....	2	1,266			2	1,266																	
5	Meridian Light and Railway.....	1	1,500					1	1,500															
	MISSOURI.																							
	Total for state.....	3	18,000							3	18,000													
6	Metropolitan Street Railway.....	2	16,000							2	16,000													
8	St. Joseph Railway, Light, Heat and Power.....	1	2,000							1	2,000													

¹ These turbines are in the class 5,000 H. P. and over.

² These water wheels are in the class 1,000 H. P. and under 2,000 H. P.

³ Includes 2 turbines of 16,000 H. P. in the class 5,000 H. P. and over.

STREET AND ELECTRIC RAILWAYS.

SUPPLEMENTARY TABLE 1.—STEAM TURBINES, GAS ENGINES, AND WATER WHEELS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	STEAM TURBINES.								GAS ENGINES.			WATER WHEELS.									
		Total.	500 H. P. or under.		Over 500 H. P. and under 1,000 H. P.		1,000 H. P. and under 2,000 H. P.		2,000 H. P. and over.		Total.	500 H. P. and under.		Over 500 H. P.								
			No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.		No.	H. P.	No.	H. P.	No.	H. P.					
NEBRASKA.																						
	Total for state.....	1	2,680						1	2,680												
5	Omaha and Council Bluffs.....	1	2,680						1	2,680												
NEW HAMPSHIRE.																						
	Total for state.....												2	800	2	800						
2	Claremont Railway and Lighting.....												2	800	2	800						
NEW JERSEY.																						
	Total for state.....	15	41,395			5	3,800	1	1,075	49	130,730											
1	Atlantic Coast Electric Railway.....	3	2,250			3	2,250															
7	West Jersey and Seashore (Camden and Atlantic City branch).....	4	10,730							4	10,730											
10	New Jersey and Hudson River Railway and Ferry.....	1	1,075					1	1,075													
11	Jersey Central Traction.....	1	800			1	800															
15	Public Service Railway.....	6	26,750			1	750			15	126,000											
NEW YORK.																						
	Total for state.....	16	64,730			2	1,500	3	3,750	11	450,500	6	1,975	6	1,975	24	9,485	20	4,065	14	15,420	
1	Albany and Hudson Railroad.....															7	6,295	4	1,525	3	4,770	
3	Hudson Valley Railway.....															6	1,720	6	1,720			
12	Buffalo Southern.....									2	325	2	325									
18	Elmira Water, Light and Railroad.....	1	3,000							1	3,000											
32	Chautauque Traction.....	2	5,000							2	5,000											
48	Interborough Rapid Transit.....	4	9,250					3	3,750	1	5,500											
58	Transit Development Co.....	4	40,000							4	40,000											
73	Richmond Light and Railroad.....	3	3,500			2	1,500			1	2,000											
72	Ogdensburg Street Railway.....															4	320	4	320			
73	Western New York and Pennsylvania									4	1,650	4	1,650									
88	Rochester, Syracuse and Eastern.....	2	4,000							2	4,000											
96	Syracuse and Suburban.....															1	650			1	650	
100	Black River Traction.....															6	500	6	500			
NORTH CAROLINA.																						
	Total for state.....	6	4,350			5	3,350	1	1,000							20	2,850	20	2,850			
1	Asheville Electric.....															2	400	2	400			
4	Durham Traction.....	1	750			1	750															
8	Raleigh Electric.....	2	1,400			2	1,400									2	450	2	450			
10	Tide Water Power.....	2	1,200			2	1,200															
11	Fries Manufacturing and Power.....	1	1,000					1	1,000							16	2,000	16	2,000			
OHIO.																						
	Total for state.....	28	47,465	2	500	9	6,140	5	6,325	12	634,300	2	250	2	250		5	1,250	5	1,250		
1	Northern Ohio.....	2	6,125					1	1,125	1	3,000											
8	Cincinnati Traction.....	1	2,250							1	2,250											
20	Cleveland, Southwestern and Columbus.....	3	3,200	1	200			2	3,000													
24	Columbus Railway and Light.....	3	3,750			2	1,500			1	2,250											
27	Columbus, Delaware and Marion.....	2	3,050					1	1,200	1	2,250											
28	Ohio Electric Railway.....	4	4,310			2	1,300	1	1,000	1	2,000						5	1,250	5	1,250		
41	Lancaster Traction and Power.....									2	250	2	250									
51	Portsmouth Street Railway.....	1	2,000	1	500	3	1,800															
59	Steubenville and East Liverpool.....	2	1,400			2	1,400															
62	Toledo Railways and Light.....	5	14,700							5	14,700											
65	Lake Shore.....	2	5,350							2	5,350											
PENNSYLVANIA.																						
	Total for state.....	41	197,825	3	500	8	5,825	810	100	22	91,400	9	3,050	8	2,450	1	600	5	625	5	625	
1	Lehigh Valley Transit.....	1	7,500			1	700	1	1,500	2	5,500						3	225	3	225		
8	Pittsburg and Butler.....	2	2,400					2	2,400													
17	Conne and Columbia.....									1	110	1	110									
34	Wilkes-Barre and Hazleton.....	2	4,000							2	4,000											
48	Kittanning and Lonsdale.....																					
61	Carlisle Street Railway.....									2	1,000	1	400	1	600							
72	Citizens Traction.....	1	2,075	1	50	3	2,025										2	400	2	400		
75	Philadelphia Rapid Transit.....	13	46,350			1	700	2	2,000	810	43,200											
78	Philadelphia and West Chester.....	2	1,000			2	1,000															
82	Philadelphia and Western.....	2	5,000																			
85	Pittsburg Railways.....	6	20,400	1	200					15	20,200											
89	West Penn Railway.....	4	8,500					3	4,000	1	4,500											
100	Seranton Railway.....	1	750			1	750															
110	Warren Street Railway.....									3	900	3	900									
111	Warren and Jamestown.....									2	1,000	2	1,000									
113	Chambersburg, Greensville and Waynesboro.....	1	250	1	250																	

* Includes 2 turbines of 14,000 H. P. in the class 5,000 H. P. and over.

* Includes 3 turbines of 45,500 H. P. in the class 5,000 H. P. and over.

* Includes 3 water-wheels of 1,750 H. P. in the class 1,000 H. P. and under 2,000 H. P.

* Includes 1 turbine of 5,000 H. P.

* Includes 1 turbine of 49,500 H. P. in the class 5,000 H. P. and over.

* Includes 3 turbines of 25,000 H. P. in the class 5,000 H. P. and over.

* Includes 3 turbines of 22,500 H. P. in the class 5,000 H. P. and over.

SUPPLEMENTARY TABLE 1.—STEAM TURBINES, GAS ENGINES, AND WATER WHEELS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	STEAM TURBINES.					GAS ENGINES.			WATER WHEELS.													
		Total.	500 H. P. or under.	Over 500 H. P. and under 1,000 H. P.	1,000 H. P. and under 2,000 H. P.	2,000 H. P. and over.	Total.	500 H. P. and under.	Over 500 H. P.	Total.	500 H. P. and under.	Over 500 H. P.											
		No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.	No.	H. P.										
RHODE ISLAND.																							
	Total for state.....	3	5,350				2	2,000	1	3,350													
3	Rhode Island Company.....	1	3,350																				
4	New York, New Haven and Hartford	2	2,000				2	2,000															
SOUTH CAROLINA.																							
	Total for state.....	2	4,000					2	4,000			6	8,040		16	18,040							
4	Columbia Electric Street Railway, Light and Power.....	2	4,000					2	4,000			6	8,040		6	8,040							
TENNESSEE.																							
	Total for state.....	10	22,000	4	1,000				16	21,000													
4	Jackson Railway and Light.....	2	800	2	800																		
6	Knoxville Railway and Light.....	2	4,000					2	4,000														
9	Nashville Railway and Light.....	6	17,200	2	200			14	17,000														
TEXAS.																							
	Total for state.....	3	2,250			3	2,250																
10	El Paso Electric Railway.....	3	2,250			3	2,250																
UTAH.																							
	Total for state.....											10	9,600		10	19,600							
3	Utah Light and Railway.....											10	9,600		10	19,600							
VERMONT.																							
	Total for state.....											4	2,750	3	550	3	2,200						
4	Twin State Gas and Electric.....											2	250	2	250								
6	Rutland Railway, Light and Power.....											3	3,200		3	2,200							
8	Springfield Electric.....											1	300	1	300								
VIRGINIA.																							
	Total for state.....	13	20,604	4	270	2	1,500	3	4,512	4	14,822	4	900	4	900	25	16,925	15	4,225	10	12,700		
5	Lynchburg Traction and Light.....	2	785	1	35	1	750									10	3,400	10	3,400				
7	Newport News and Old Point Railway and Electric.....	1	2,250					1	2,250														
11	Norfolk and Atlantic Terminal.....									4	900	4	900										
12	Norfolk and Portsmouth Traction.....	8	15,819	3	235		2	3,512	3	12,072						2	600	2	600				
13	Radford Water Power.....																						
15	Virginia Passenger and Power.....											13	12,925	3	235	10	12,700						
22	Washington, Alexandria and Mt. Vernon.....	1	1,000				1	1,000															
23	Great Falls and Old Dominion.....	1	750			1	750																
WASHINGTON.																							
	Total for state.....	4	16,300			1	600	1	1,000	12	14,700			3	4,900		13	14,900					
1	Grays Harbor Railway.....	1	600			1	600																
2	Whatcom County Railway.....													1	3,300				1	3,300			
3	Puget Sound International Railway.....	1	1,000					1	1,000														
6	Olympia Light and Power.....													2	1,600				2	1,600			
7	Seattle Electric.....	2	14,700							12	14,700												
WEST VIRGINIA.																							
	Total for state.....	5	4,533			3	1,533	2	2,700		3	350	3	350									
3	Fairmont and Clarksburg.....	4	4,000			2	1,300	2	2,500														
5	Martinsburg Light and Power.....									3	350	3	350										
10	Parkersburg, Marietta and Inter-urban.....	1	533			1	533																
WISCONSIN.																							
	Total for state.....	10	9,450	4	135	1	800	5	8,715		1	2,000		1	2,000	26	3,400	26	3,400				
1	Wisconsin Traction, Light, Heat and Power.....															16	2,550	16	2,550				
4	Milwaukee Northern.....									1	2,000		1	2,000									
7	Green Bay Traction.....	1	800			1	800									5	300	5	300				
14	Merrill Railway and Lighting.....																						
15	Milwaukee Electric Railway and Light.....	9	8,850	4	135		5	8,715															
19	Wausau Electric Light and Railway.....													1	210	1	210						
20	Wausau Street Railroad.....													4	200	4	200						
OUTLYING DISTRICTS.																							
	Total.....	1	750			1	750																
PORTO RICO.																							
	Total.....	1	750			1	750																
3	San Juan Light and Transm.....	1	750			1	750																

¹ These water wheels are in the class 1,000 H. P. and under 2,000 H. P.

² Includes 3 turbines of 15,000 H. P. in the class 5,000 H. P. and over.

³ Includes 6 water wheels of 7,200 H. P. in the class 1,000 H. P. and under 2,000 H. P.

⁴ Includes 1 turbine of 10,700 H. P.

⁵ Includes 1 water wheel of 3,300 H. P.

SUPPLEMENTARY TABLE 2.—ALTERNATING-CURRENT DYNAMOS.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TOTAL.		500 K. W. OR UNDER.		OVER 500 K. W. AND UNDER 1,000 K. W.		1,000 K. W. AND UNDER 2,000 K. W.		2,000 K. W. AND OVER.	
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.
	UNITED STATES.....	922	781,914	538	153,268	119	82,796	147	190,400	1106	1,355,450
	ALABAMA.										
	Total for state.....	14	11,700	10	2,700			2	3,000	2	6,000
1	Anniston Electric and Gas.....	5	1,000	5	1,000						
2	Birmingham Railway, Light and Power.....	4	9,000					2	3,000	2	6,000
3	Alabama City, Gadsden and Attalla.....	2	1,000	2	1,000						
4	Huntsville Railway, Light and Power.....	2	450	2	450						
9	Sheffield Co.....	1	250	1	250						
	ARKANSAS.										
	Total for state.....	12	4,219	10	2,119	1	600	1	1,500		
1	Citizens Electric.....	1	150	1	150						
2	Fort Smith Light and Traction.....	3	889	3	889						
4	Little Rock Railway and Electric.....	3	2,450	1	350	1	600	1	1,500		
5	Citizens Light and Transit.....	4	650	4	650						
8	Walnut Ridge and Hoxie.....	1	80	1	80						
	CALIFORNIA.										
	Total for state.....	21	25,450	2	1,000	4	2,850	14	19,650	1	2,750
11	Pacific Electric.....	5	7,500					5	7,500		
12	Los Angeles Pacific.....	6	9,300					5	6,550	1	2,750
13	Los Angeles Interurban.....	1	800			1	800				
27	San Diego Electric.....	2	1,000	2	1,000						
32	United Railroads of San Francisco.....	4	4,400					4	4,400		
40	Central California Traction.....	3	2,050			3	2,050				
	COLORADO.										
	Total for state.....	8	5,559	5	1,099	1	900	1	1,500	1	2,000
1	Boulder Electric Light and Power.....	2	124	2	124						
3	Colorado Springs and Cripple Creek.....	1	225	1	225						
4	Denver City Tramway.....	2	3,500					1	1,800	1	2,000
10	Pueblo and Suburban Traction and Lighting.....	3	1,710	2	750	1	960				
	CONNECTICUT.										
	Total for state.....	12	2,730	12	2,730						
6	New York, New Haven and Hartford Railroad.....	9	1,530	9	1,530						
8	Norwich and Westerly Railway.....	3	1,200	3	1,200						
	DISTRICT OF COLUMBIA.										
	Total for district.....	2	3,000					2	3,000		
4	Capital Traction.....	2	3,000					2	3,000		
	FLORIDA.										
	Total for state.....	21	4,668	20	3,688			1	1,000		
3	Jacksonville Electric.....	2	300	2	300						
5	Key West Electric.....	6	798	6	798						
6	Pensacola Electric.....	5	700	5	700						
7	St. Johns Light and Power.....	3	600	3	600						
10	Tampa Electric.....	5	2,300	4	1,200			1	1,000		
	GEORGIA.										
	Total for state.....	25	15,200	19	6,600	1	600	2	2,000	3	6,000
1	Athens Electric Railway.....	6	2,650	6	2,650						
2	Georgia Railway and Electric.....	6	8,400			1	600	2	2,000	3	6,000
4	Augusta Railway and Electric.....	3	1,050	3	1,050						
7	Gainesville Electric Railway.....	2	900	2	900						
8	Macon Railway and Light.....	3	500	3	500						
9	Rome Railway and Light.....	2	1,000	2	1,000						
10	Savannah Electric.....	3	1,100	3	1,100						
	ILLINOIS.										
	Total for state.....	69	30,620	29	7,410	7	4,780	10	12,500	3	6,000
3	Fruit Growers Refrigerating and Power.....	1	75	1	75						
6	Bloomington and Normal.....	2	1,400			2	1,400				
7	Peoria, Bloomington and Champaign.....	1	2,000							1	2,000
8	Carle Electric and Traction.....	4	480	4	480						
11	Urbana and Champaign.....	2	650	1	150	1	540				
25	South Chicago City Railway.....	1	300	1	300						
27	Chicago and Milwaukee.....	4	3,240	1	250	1	540	2	2,500		
29	Danville Street Railway and Light.....	4	3,300	2	500	1	800			1	2,000
30	Deerfield Railway and Light.....	3	1,400	2	800			1	1,000		
31	Illinois Central Traction.....	1	1,000					1	1,000		
36	East St. Louis and Suburban.....	2	1,500			2	1,500				
38	Freeport Railway, Light and Power.....	2	350	2	350						
39	Galesburg Railway and Light.....	2	1,000	2	1,000						
40	Peoples Traction.....	1	200	1	200						
43	Chicago, Harvard and Geneva Lake.....	1	100	1	100						
46	St. Louis and North Eastern.....	2	2,400	1	400					1	2,000
47	Jacksonville Railway and Light.....	2	430	2	430						
52	Illinois Valley Railway.....	1	1,000					1	1,000		
59	Northern Illinois Light and Traction.....	2	500	2	500						
63	Bloomington, Pontiac and Joliet.....	1	300	1	300						
65	Rockford and Interurban.....	2	1,000	2	1,000						
67	St. Louis and Springfield.....	1	1,000					1	1,000		
69	Illinois Light and Traction.....	3	375	3	375						
70	Aurora, Elgin and Chicago.....	4	6,000					4	6,000		

* Includes 20 dynamos of 116,000 K. W. capacity in the class 5,000 K. W. and over.

* Electrical-generator equipment owned, but operated by Pacific Electric Railway.

SUPPLEMENTARY TABLE 2.—ALTERNATING-CURRENT DYNAMOS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total.		500 K. W. OR UNDER.		OVER 500 K. W. AND UNDER 1,000 K. W.		1,000 K. W. AND UNDER 2,000 K. W.		2,000 K. W. AND OVER.	
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.
INDIANA.											
Total for state.....		55	38,400	25	9,110	13	8,880	17	20,500		
1	Indiana Union Traction.....	9	7,080	2	1,000	2	1,000	5	5,000		
2	Angola Railway and Power.....	2	110	2	110						
6	Indianapolis, Columbus and Southern.....	2	1,100	1	500	1	600				
7	Fort Wayne and Springfield.....	1	450	1	450						
8	Evansville and Southern Indiana.....	2	800	2	800						
11	Fort Wayne and Wabash Valley.....	6	4,850	4	1,850			2	3,000		
14	Indianapolis Traction and Terminal.....	2	3,000					2	3,000		
15	Terre Haute, Indianapolis and Eastern.....	14	10,800	6	2,300	4	3,000	4	5,500		
16	Indianapolis and Cincinnati.....	4	3,000	2	1,000			2	2,000		
17	Indianapolis, Crawfordsville and Western.....	2	1,400			2	1,400				
18	Toledo and Chicago Interurban.....	2	1,600			2	1,600				
19	Kokomo, Marion and Western.....	3	2,330	1	350			2	2,000		
22	Madison Light and Railway.....	2	170	2	170						
26	Muncie and Portland.....	2	600	2	600						
32	Winona Interurban Railway.....	2	1,200			2	1,200				
IOWA.											
Total for state.....		29	8,940	27	7,340	2	1,400				
2	Boone Electric.....	2	120	2	120						
5	Peoples Gas and Electric.....	3	975	2	375	1	600				
7	Cedar Rapids and Iowa City.....	3	1,600	2	800	1	800				
10	Iowa and Illinois Railway.....	2	800	2	800						
14	Union Electric.....	5	2,500	5	2,500						
16	Keokuk Electric Railway and Power.....	3	575	3	575						
17	Marshalltown Light, Power and Railway.....	1	320	1	320						
20	Oskaloosa Traction and Light.....	3	700	3	700						
21	Ottumwa Railway and Light.....	3	900	3	900						
23	Tama and Toledo.....	3	250	3	250						
24	Waterloo, Cedar Falls and Northern.....	1	200	1	200						
KANSAS.											
Total for state.....		10	2,010	10	2,010						
2	Atchison Railway, Light and Power.....	4	430	4	430						
6	Union Traction.....	2	700	2	700						
9	Electric Railway, Light and Ice.....	3	700	3	700						
10	Wichita Railroad and Light.....	1	180	1	180						
KENTUCKY.											
Total for state.....		10	7,585	7	1,285			2	3,300	1	3,000
4	Lexington Railway.....	4	775	4	775						
7	Louisville Railway.....	3	6,300					2	3,300	1	3,000
8	Louisville and Eastern.....	1	300	1	300						
12	Somerset Water, Light and Traction.....	2	210	2	210						
LOUISIANA.											
Total for state.....		9	8,400	5	900			3	4,500	1	3,000
2	Baton Rouge Electric and Gas.....	4	700	4	700						
4	City of Monroe (municipal).....	1	200	1	200						
7	New Orleans Railway and Light.....	4	7,500					3	4,500	1	3,000
MAINE.											
Total for state.....		21	5,907	17	3,807	4	2,100				
1	Bangor Railway and Electric.....	4	1,520	3	920	1	600				
3	Portland and Brunswick.....	2	140	2	140						
8	Levenson, Augusta and Waterville.....	4	1,050	4	1,050						
11	Rockland, Thomaston and Camden.....	2	180	2	180						
13	Atlantic Shore Line.....	5	2,100	2	600	3	1,500				
16	Waterville and Fairfield.....	4	917	4	917						
MARYLAND.											
Total for state.....		11	25,430	3	430					18	125,000
1	United Railways.....	9	25,250	1	250					18	125,000
8	Hagerstown Railway.....	2	180	2	180						
MASSACHUSETTS.											
Total for state.....		20	18,547	11	4,047	2	1,500	1	1,000	6	12,000
5	Old Colony Street Railway.....	8	11,500	3	1,500					5	10,000
9	Berkshire Street Railway.....	2	1,500			2	1,500				
12	Conway Electric Street Railway.....	1	72	1	72						
20	Boston and Worcester.....	3	3,500	1	500			1	1,000	1	2,000
25	Holyoke Street Railway.....	1	75	1	75						
47	Brockton and Plymouth.....	1	300	1	300						
60	Worcester Consolidated.....	2	800	2	800						
62	Worcester and Southbridge.....	2	800	2	800						
MICHIGAN.											
Total for state.....		41	15,585	38	10,185			2	2,400	1	3,000
2	Bay City Traction.....	1	500	1	500						
4	Detroit United Railway.....	3	2,950	2	950					1	3,000
5	Detroit and Port Huron Shore Line.....	4	2,700	3	1,500			1	1,200		
6	Detroit, Jackson and Chicago.....	8	2,000	8	2,000						
7	Detroit, Monroe and Toledo Short Line.....	4	2,400	3	1,200			1	1,200		
11	Grand Rapids, Holland and Chicago.....	2	1,000	2	1,000						
12	Houghton County Street Railway.....	1	500	1	500						
13	Twin City General Electric.....	6	305	6	305						
14	Marquette County Gas and Electric.....	4	1,000	1	1,000						
17	Manistee Light and Traction.....	2	330	2	330						
20	Muskegon Traction and Lighting.....	3	600	3	600						
21	Owosso and Corunna.....	3	300	3	300						

¹ Includes 3 dynamos of 15,000 K. W. capacity in the class 5,000 K. W. and over.

STREET AND ELECTRIC RAILWAYS.

SUPPLEMENTARY TABLE 2.—ALTERNATING-CURRENT DYNAMOS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TOTAL.		500 K. W. OR UNDER.		OVER 500 K. W. AND UNDER 1,000 K. W.		1,000 K. W. AND UNDER 2,000 K. W.		2,000 K. W. AND OVER.	
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.
MINNESOTA.											
	Total for state.....	16	30,000			10	6,000			16	124,000
3	Twin City Rapid Transit.....	14	29,000			8	5,000			16	124,000
5	Winona Railway and Light.....	2	1,000			2	1,000				
MISSISSIPPI.											
	Total for state.....	19	4,920	19	4,920						
1	Columbus Railway, Light and Power.....	3	600	3	600						
2	Delta Electric Light, Power and Manufacturing.....	3	600	3	600						
3	Gulfport and Mississippi Coast.....	3	1,150	3	1,150						
4	Jackson Electric Railway, Light and Power.....	2	1,000	2	1,000						
5	Meridian Light and Railway.....	1	500	1	500						
6	Southern Light and Traction.....	4	500	4	500						
8	Vicksburg Railway and Light.....	3	470	3	470						
MISSOURI.											
	Total for state.....	22	30,330	7	580	3	1,950	7	8,500	15	119,000
2	Water, Light and Transit.....	3	180	3	180						
6	Metropolitan Street Railway.....	5	10,000							15	110,000
7	Missouri Water, Light and Traction.....	3	600	3	600						
8	St. Joseph Railway, Light, Heat and Power.....	2	2,100			1	600	1	1,500		
10	United Railways.....	5	6,000					5	6,000		
13	Springfield Traction.....	2	800	1	300	1	500				
14	Southwest Missouri Railroad.....	2	1,750			1	750	1	1,000		
NEBRASKA.											
	Total for state.....	5	2,425	4	425					1	2,000
3	Lincoln Traction.....	4	425	4	425						
5	Omaha and Council Bluffs.....	1	2,000							1	2,000
NEW HAMPSHIRE.											
	Total for state.....	3	390	3	390						
2	Claremont Railway and Lighting.....	3	390	3	390						
NEW JERSEY.											
	Total for state.....	24	42,850	5	2,300	4	2,750	6	10,800	19	127,000
1	Atlantic Coast Electric Railway.....	3	1,500	3	1,500						
7	West Jersey and Seashore (Camden and Atlantic City).....	4	8,000							4	8,000
10	New Jersey and Hudson River Railway and Ferry.....	1	800			1	800				
11	Jersey Central Traction.....	1	600			1	600				
15	Public Service Railway.....	15	31,950	2	800	2	1,350	6	10,800	15	110,000
NEW MEXICO.											
	Total for territory.....	2	375	2	375						
2	Las Vegas Railway and Power.....	2	375	2	375						
NEW YORK.											
	Total for state.....	87	144,355	30	10,285	8	5,600	10	13,500	30	114,950
1	Albany and Hudson Railroad.....	7	3,300	4	1,650	3	2,250				
3	Hudson Valley Railway.....	1	300	1	300						
5	St. Lawrence International.....	2	175	2	175						
9	International Railway.....	3	3,000	1	500			2	3,000		
11	Buffalo and Depew.....	2	600	2	600						
13	Buffalo and Lake Erie.....	4	300	4	300						
17	Cortland County Traction.....	2	300	2	300						
19	Elmira Water, Light and Railroad.....	5	3,700	3	700	1	750			1	2,250
24	Ronda, Johnstown and Glensville.....	3	3,000					3	3,000		
26	New York and Long Island.....	2	1,000	2	1,000						
32	Chautauque Traction.....	5	3,750	3	750			2	3,000		
35	Lima-Honesdale Light and Railroad.....	3	225	3	225						
39	New York City Railway.....	19	66,500							19	66,500
39	Transit Development Co.....	10	46,300							10	46,300
63	New York and Queens County.....	1	500	1	500						
67	Richmond Light and Railroad.....	5	3,500	4	2,000			1	1,500		
73	Western New York and Pennsylvania.....	3	900	3	900						
75	Oneonta and Monticello Valley.....	1	1,000	2	1,000						
83	Port Jervis Electric Light, Power, Gas and Railroad.....	2	25	2	25						
88	Rochester, Syracuse and Eastern.....	1	3,000					2	3,000		
89	Rochester and Eastern Rapid Railway.....	2	1,300			2	1,300				
94	Auburn and Syracuse.....	2	1,300			2	1,300				
NORTH CAROLINA.											
	Total for state.....	21	7,005	20	5,415	3	2,250				
1	Asheville Electric.....	4	900	4	900						
3	Charlotte Electric Railway, Light and Power.....	2	200	2	200						
4	Durham Traction.....	3	775	3	775						
6	Greensboro Electric.....	5	900	5	900						
9	Raleigh Electric.....	4	1,300	4	1,300						
9	Salisbury and Spencer Railway.....	2	300	2	300						
10	Pine Water Power.....	3	800	2	800						
11	Fries Manufacturing and Power.....	3	2,250			3	2,250				

* Includes 2 dynamos of 10,000 K. W. capacity in the class 5,000 K. W. and over.

* Includes 4 dynamos of 30,000 K. W. capacity in the class 5,000 K. W. and over.

SUPPLEMENTARY TABLE 2.—ALTERNATING-CURRENT DYNAMOS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	Total.		500 K. W. OR UNDER.		OVER 500 K. W. AND UNDER 1,000 K. W.		1,000 K. W. AND UNDER 2,000 K. W.		2,000 K. W. AND OVER.	
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.
OHIO.											
	Total for state.....	109	68,824	67	20,688	21	14,735	14	16,100	7	17,000
1	Northern Ohio.....	8	6,950	4	1,450	1	500	2	2,500	1	2,000
2	Stark Electric.....	2	1,000	2	1,000						
4	Pennsylvania and Ohio.....	2	750	2	750						
5	Lake Erie, Bowling Green and Napoleon.....	1	200	1	200						
6	Cambridge Power, Light and Traction.....	2	225	2	225						
7	Chillicothe Electric.....	3	850	3	850						
8	Cincinnati Traction.....	1	1,200					1	1,200		
12	Cincinnati and Columbus.....	2	1,000			2	1,000				
14	Cincinnati, Milford and Loveland.....	2	1,000	2	1,000						
15	Interurban Railway and Terminal.....	4	2,000	4	2,000						
20	Cleveland, Southwestern and Columbus.....	2	2,000					2	2,000		
24	Columbus Railway and Light.....	3	2,500	2	1,000			1	1,500		
26	Seton Valley Traction.....	2	2,000					2	2,000		
27	Columbus, Delaware and Marion.....	3	2,875	1	75	1	800			1	2,000
28	Ohio Electric Railway.....	11	6,750	6	1,950	4	3,200	1	1,000		
37	United Electric.....	5	335	5	335						
38	East Liverpool Traction and Light.....	4	750	4	750						
43	Western Ohio Railway.....	4	2,300	2	800	2	1,500				
46	Mansfield Railway, Light and Power.....	2	1,000			2	1,000				
47	Mount Vernon Railway and Light.....	2	250	2	250						
49	Cleveland, Painesville and Ashtabula.....	2	920	2	920						
51	Portsmouth Street Railroad.....	4	1,900	4	1,900						
52	Victory Park Railway.....	2	75	2	75						
55	Springfield, Troy and Piqua.....	2	1,080			2	1,080				
59	Stonewille and East Liverpool.....	8	1,008	8	1,008						
62	Toledo Railways and Light.....	12	3,100	1	500	1	810	2	2,000	3	9,000
63	Toledo Urban and Interurban.....	2	2,000					2	2,000		
64	Toledo and Indiana.....	2	1,200			2	1,200				
65	Lake Shore.....	2	7,600	6	2,800			1	1,000	2	4,000
67	Toledo, Port Clinton and Lakeside.....	9	1,000			2	1,000				
68	Toledo and Western.....	3	1,380	1	300	2	1,080				
70	Wellston and Jackson Belt.....	1	90	1	90						
OKLAHOMA.											
	Total for state.....	3	1,200	3	1,200						
3	Choctaw Railway.....	3	1,200	3	1,200						
PENNSYLVANIA.											
	Total for state.....	66	86,329	29	8,279	2	1,800	21	25,000	14	151,250
1	Lehigh Valley Transit.....	1	5,200	1	500			1	1,000	2	4,000
6	Columbia and Mountair.....	2	400	2	400						
8	Pittsburg and Butler.....	2	2,000					2	2,000		
20	Westmoreland County Railway.....	3	660	3	660						
21	Philadelphia and Easton.....	2	800	2	800						
38	Wilkes-Barre and Hazleton.....	5	3,200	3	1,200			2	2,000		
48	Kittanning and Leeburg.....	1	350	1	350						
52	Pittsburg and Allegheny Valley.....	1	180	1	180						
68	Bucks County Electric.....	3	334	3	234						
72	Citizens Traction.....	3	1,500	3	1,500						
75	Philadelphia Rapid Transit.....	12	31,000					8	11,000	4	730,000
82	Philadelphia and Western.....	2	4,000							2	4,000
83	Centre and Clearfield.....	2	500	2	500						
85	Pittsburg Railways.....	9	21,900			2	1,800	2	3,000	5	420,000
89	West Penn Railway.....	7	9,250					6	6,000	1	3,250
111	Warren and Jamestown.....	2	600	2	600						
113	Chambersburg, Greencastle and Waynesboro.....	4	675	4	675						
115	Wilkes-Barre and Wyoming Valley.....	1	80	1	80						
121	Trenton, New Hope and Lambertville.....	1	500	1	500						
RHODE ISLAND.											
	Total for state.....	6	7,300	1	300	2	1,500	2	3,000	1	2,500
1	Sea View Railroad.....	1	300	1	300						
3	Rhode Island Company.....	3	5,500					2	3,000	1	2,500
4	New York, New Haven and Hartford.....	2	1,500			2	1,500				
SOUTH CAROLINA.											
	Total for state.....	10	10,210	10	1,670	5	3,540	4	5,000		
1	Anderson Traction.....	1	400	1	400						
3	Charleston Consolidated Railway, Gas and Electric.....	6	1,375	5	835	1	540				
4	Columbia Electric Street Railway, Light and Power.....	8	8,000			4	3,000	4	5,000		
7	Spartanburg Railway, Gas and Electric.....	4	435	4	435						
TENNESSEE.											
	Total for state.....	11	16,150	4	1,400			4	5,750	3	9,000
4	Jackson Railway and Light.....	2	600	2	600						
6	Knoxville Railway and Light.....	4	3,800	2	800			2	3,000		
9	Nashville Railway and Light.....	5	11,750					2	2,750	3	9,000
TEXAS.											
	Total for state.....	20	6,549	17	4,519	3	1,800				
10	El Paso Electric Railway.....	6	1,900	6	1,900						
11	Citizens Railway and Light.....	4	924	4	924						
12	Northern Texas Traction.....	3	1,800			3	1,800				
13	Galveston Electric.....	4	1,125	4	1,125						
15	Laredo Electric and Railway.....	3	600	3	600						

*Includes 6 dynamos of 33,000 K. W. capacity in the class 5,000 K. W. and over.

*Includes 3 dynamos of 18,000 K. W. capacity in the class 5,000 K. W. and over.

*Includes 3 dynamos of 15,000 K. W. capacity in the class 5,000 K. W. and over.

SUPPLEMENTARY TABLE 2.—ALTERNATING-CURRENT DYNAMOS—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TOTAL.		500 K. W. OR UNDER.		OVER 500 K. W. AND UNDER 1,000 K. W.		1,000 K. W. AND UNDER 2,000 K. W.		2,000 K. W. AND OVER.	
		No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.	No.	K. W.
UTAH.											
	Total for state.....	15	7,450	8	2,200	7	5,250				
3	Utah Light and Railway.....	15	7,450	8	2,200	7	5,250				
VERMONT.											
	Total for state.....	4	1,500	4	1,500						
4	Twin State Gas and Electric.....	1	300	1	300						
6	Rutland Railway, Light and Power.....	3	1,200	3	1,200						
VIRGINIA.											
	Total for state.....	37	27,130	22	6,530	4	6,100	4	5,500	3	9,000
5	Lynchburg Traction and Light.....	5	2,000	3	900	2	1,500				
7	Newport News and Old Point Railway and Electric.....	4	2,800	2	600	1	700	1	1,500		
9	Norfolk and Southern.....	1	1,000					1	1,000		
12	Norfolk and Portsmouth Traction.....	10	12,700	5	700			2	3,000	3	9,000
14	Richmond and Chesapeake Bay.....	2	1,500			2	1,500				
15	Virginia Passenger and Power.....	4	2,450	1	450	3	2,000				
16	Richmond Passenger and Power.....	3	1,500	3	1,500						
19	Roanoke Railway and Electric.....	3	800	3	800						
20	Blue Ridge Light and Power.....	3	500	3	500						
22	Washington, Alexandria and Mt. Vernon.....	1	500	1	500						
23	Great Falls and Old Dominion.....	1	500	1	500						
WASHINGTON.											
	Total for state.....	19	21,294	11	2,644	1	750	5	6,700	12	11,000
1	Grays Harbor Railway.....	3	750	3	750						
2	Whatcom County Railway.....	6	2,094	5	504			1	1,500		
3	Puget Sound International Railway.....	2	1,250	1	500	1	750				
4	Olympia Light and Power.....	1	500	1	500						
7	Seattle Electric.....	4	14,200					2	3,200	12	11,000
13	Tacoma Railway and Power.....	3	2,500	1	500			2	2,000		
WEST VIRGINIA.											
	Total for state.....	24	9,403	17	4,163	5	3,300	2	2,000		
1	Bluestone Traction.....	2	1,500			2	1,500				
3	Fairmont and Clarksburg.....	4	3,000	2	1,000			2	2,000		
4	Camden Interstate Railway.....	5	2,500	2	800	3	1,800				
5	Mannington Light and Power.....	3	250	3	250						
6	Union Utility.....	2	300	2	300						
10	Parkersburg, Marietta and Interurban.....	5	1,270	5	1,270						
14	City and Elm Grove.....	3	473	3	473						
WISCONSIN.											
	Total for state.....	28	20,605	16	5,995	2	1,200	10	13,500		
1	Wisconsin Traction, Light, Heat and Power.....	2	1,000	2	1,000						
4	Milwaukee Northern.....	1	1,000					1	1,000		
5	Chippewa Valley Railway, Light and Power.....	3	1,700	1	500	2	1,200				
6	Eastern Wisconsin Railway and Light.....	3	520	3	520						
7	Green Bay Traction.....	2	1,000	2	1,000						
15	Milwaukee Electric Railway and Light.....	9	12,500					9	12,500		
16	Milwaukee Light, Heat and Traction.....	2	1,000	2	1,000						
17	Winnipeg Traction.....	2	800	2	800						
18	Shelbygan Light, Power and Railway.....	2	1,000	2	1,000						
19	Waupaca Electric Light and Railway.....	2	175	2	175						
OUTLYING DISTRICTS.											
	Total.....	6	1,370	6	1,370						
PORTO RICO.											
	Total.....	6	1,370	6	1,370						
2	Ponce Railway and Light.....	3	420	3	420						
3	San Juan Light and Transit.....	3	950	3	950						

¹Includes 1 dynamo of 8,000 K. W. capacity.

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.			
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.	
											No.	H. P.	No.	H. P.
	UNITED STATES.....	1,603	243,457	16,489	134	17,046	311	19,152	243	96,246	1,462	20,872	706	20,405
	ALABAMA.													
	Total for state.....	17	7,600		2	180	2	100	12	6,650	2	160		
1	Anniston Electric and Gas.....										2	160		
2	Birmingham Railway, Light and Power.....	7	3,000						9	6,050				
3	Alabama City, Gadsden and Attalla.....	6	3,400				2	100	2	400				
4	Mobile Light and Railroad.....				2	180								
5	Sheffield Co.....	4	300						1					
	ARKANSAS.													
	Total for state.....	3	887						1	400	1	1	2	45
2	Fort Smith Light and Traction.....	2	322										1	60
4	Little Rock Railway and Electric.....	1	555						1	500	1	1	1	5
	CALIFORNIA.													
	Total for state.....	40	11,775	276	4	437	10	1,048	7	2,700	97	1,507	41	2,652
5	Humboldt Transit.....										1	5		
10	Los Angeles Railway.....										14	223		
11	Pacific Electric.....	15	500		1	100	4	287			13	200	15	1,000
12	Los Angeles Pacific.....	19	10,000								12	127	5	460
13	Los Angeles Interurban.....										11	8		
15	Vallejo, Beneta and Napa Valley.....												2	585
17	San Francisco, Oakland and San Jose.....			276	2	327								
19	Santa Clara Interurban.....												1	40
22	East Shore and Suburban.....										1	25		
25	Sacramento Electric, Gas and Railway.....								4	1,300	5	72		
26	San Bernardino Valley Traction.....										4	60		
27	San Diego Electric.....						2	60					2	700
32	United Railroads of San Francisco.....						2	600			25	730	12	467
33	San Jose Railway.....										2	5		
34	San Jose and Santa Clara County.....				1	10	2	1			3	45		
35	San Jose-Los Gatos Interurban.....										1	2		
36	Santa Barbara Consolidated.....										1	5		
37	Union Traction.....												4	400
40	Central California Traction.....	6	1,275						3	1,400				
	COLORADO.													
	Total for state.....	10	750					3	300		4	290	8	13
3	Colorado Springs and Cripple Creek.....												2	1
4	Denver City Tramway.....	3	550										6	12
10	Pueblo and Suburban Traction and Lighting.....	7	200					3	300		4	290		
	CONNECTICUT.													
	Total for state.....	9	1,275		6	696	3	103	2	700	14	774	10	94
3	Hartford and Springfield Street Railway.....				1	60					12	754	8	74
6	New York, New Haven and Hartford Railroad.....	6	675		5	635	2	53			1	4		
7	New London and East Lyme Street Railway.....													
8	Norwich and Westerly Railway.....	3	600				1	50	2	700	1	20	2	20
	DELAWARE.													
	Total for state.....										3	400		
2	Peoples Railway.....										3	400		
	DISTRICT OF COLUMBIA.													
	Total for district.....				2	200	4	160			13	412	5	100
4	Capital Traction.....				2	200	4	160			13	412	5	100
	FLORIDA.													
	Total for state.....	2	36				2	22	1	500	1	4	8	107
5	Key West Electric.....										1	8	2	27
6	Pensacola Electric.....						2	22					2	15
7	St. Johns Light and Power.....												4	65
10	Tampa Electric.....	2	36						1	500				
	GEORGIA.													
	Total for state.....	19	6,950				17	679	7	5,000	13	1,240	17	546
1	Athens Electric Railway.....						7	102					3	206
2	Georgia Railway and Electric.....	11	5,250				4	190	4	4,800	9	1,180	13	354
4	Augusta Railway and Electric.....	4	800				3	112	1	400				
7	Gainesville Electric Railway.....	4	900										1	2
9	Rome Railway and Light.....								2	400				
10	Savannah Electric.....						3	285			4	60		

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
ILLINOIS.															
Total for state.....		168	19,240	2,053	14	1,714	12	907	12	1,210	127	3,313	34	1,744	
6	Bloomington and Normal.....												1	1	
7	Peoria, Bloomington and Champaign.....	6	2,830				4	80			2	40			
8	Quincy Electric and Traction.....	1	120					52					1	1	
11	Urbana and Champaign.....	3	90						1	210					
13	Danville, Urbana and Champaign.....			400	1	200			2	600					
14	Chicago City Railway.....			264	2	567					34	1,140			
15	Chicago Union Traction.....										24	396	6	45	
16	Chicago Consolidated Traction.....				1	200					15	260			
17	Calumet Electric Street Railway.....										7	210			
19	Southern Street Railway.....										1	15			
22	Northwestern Elevated Railroad.....										3	100			
23	South Side Elevated Railroad.....			825	2	487									
24	Metropolitan West Side Elevated.....										7	349			
25	South Chicago City Railway.....	3	330		2	100					2	4			
27	Chicago and Milwaukee.....						2	105			8	351	4	14	
28	Chicago and Joliet.....										4	19			
29	Danville Street Railway and Light.....	9	900						2	600					
30	Decatur Railway and Light.....	6	900		5	125	1	50	3	900					
31	Illinois Central Traction.....	3	1,050												
34	Sterling, Dixon and Eastern.....										1	5			
36	East St. Louis and Suburban.....	4	1,155	300					1	500					
37	Elgin and Belvidere.....										1	10			
39	Galesburg Railway and Light.....												5	1,020	
40	Peoples Traction.....	3	150												
46	St. Louis and North Eastern.....	3	2,100												
47	Jacksonville Railway and Light.....	106	400								2	72			
49	Kankakee Electric Railway.....										1	5			
52	Illinois Valley Railway.....	3	900		1	35			1	400	6	42			
54	Coal Belt Electric Railway.....										1	15			
59	Northern Illinois Light and Traction.....			264											
65	Rockford and Interurban.....								2	1,000					
67	St. Louis and Springfield.....	3	1,050										1	100	
70	Aurora, Elgin and Chicago.....	15	7,155				3	620			6	280	16	554	
INDIANA.															
Total for state.....		91	21,434	288	5	600	24	2,973	9	2,700	6	846	13	609	
1	Indiana Union Traction.....	36	8,900				7	193							
3	Marion, Ruffin and Eastern.....	6	170												
7	Fort Wayne and Springfield.....	1	200						1	200					
11	Evansville and Southern Indiana.....						2	30					1	4	
14	Fort Wayne and Wabash Valley.....	7	2,025		1	50			2	1,000	1	800			
15	Indianapolis Traction and Terminal.....	4	2,000		3	600					2	35			
16	Terre Haute, Indianapolis and Eastern.....	7	231				7	2,500					3	75	
17	Indianapolis and Cincinnati.....	8	3,000								1	10	2	225	
18	Indianapolis, Hartfordville and Western.....	6	1,500				1	50							
19	Toledo and Chicago Interurban.....	2	540				2	50					3	13	
23	Kokomo, Marion and Western.....	3	450	288	1	40	2	65	2	300	2	1	1	40	
24	Louisville and Northern.....												1	2	
26	Muncie and Portland.....	5	616				2	35	2	600			1	10	
27	Muncie and Portland.....	5	616				1	50	2	600			1	100	
28	Winona Interurban Railway.....	6	1,200												
Total for state.....		23	3,778		5	85	6	190	5	1,500	15	291	20	602	
3	Fort Dodge, Des Moines and Southern.....	9	2,820				2	60			1	25	1	20	
7	Cedar Rapids and Iowa City.....	2	50		4	48					1	1	9	400	
10	Iowa and Illinois Railway.....	6	600				2	60	1	300	2	13			
12	Des Moines City Railway.....										4	100	1	2	
13	Interurban Railway.....												4	8	
14	Union Electric.....						2	70	4	1,200					
20	Oskaloosa Traction and Light.....	3	53												
21	Ottumwa Railway and Light.....										1	100	5	82	
22	Sioux City Traction.....										5	37			
23	Tama and Toledo.....										1	15			
24	Waterloo, Cedar Falls and Northern.....	3	225		1	37									
KANSAS.															
Total for state.....		15	820				3	68	1	350	2	13			
6	Union Traction.....	6	600						1	350					
6	Electric Railway, Light and Ice.....	5	70				3	68			1	3			
9	Kansas City-Western Railway.....											10			
10	Wichita Railroad and Light.....	4	150												
KENTUCKY.															
Total for state.....		14	1,505	720	2	200	4	122	4	1,300	11	255	22	790	
2	Cincinnati, Newport and Covington.....	6	900						2	800	1	5			
3	Henderson Traction.....										1	15			
4	Lexington Railway.....	3	330	445			1	18	1	300					
7	Louisville Railway.....			275	2	500	2	102			9	235	22	390	
8	Louisville and Eastern.....	3	225				1	2	1	200					
12	Somerset Water, Light and Traction.....	2	50												

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
LOUISIANA.															
	Total for state.....	137	3,031	118	2	500	5	250	2	130	7	356	5	52	
2	Baton Rouge Electric and Gas.....	3	122								1	5			
4	City of Monroe (municipal).....	109	191						1	100					
7	New Orleans Railway and Light.....	14	1,044	90	2	500	4	256			1	1	1	2	
8	New Orleans and Carrollton.....	11	1,674	58			1	5	1	330	2	340	4	80	
11	Shreveport Traction.....										3	10			
MAINE.															
	Total for state.....	183	3,300	206	2	160			2	250	8	148	2	2	
1	Bangor Railway and Electric.....				1	80					1	80	2	2	
2	Biddeford and Saco.....			200											
3	Portland and Brunswick.....										2	8			
8	Lewiston, Augusta and Waterville.....	6	900						1	130					
10	Portland Railroad.....				1	80									
11	Rockland, Thomaston and Camden.....	171	309								2	35			
13	Atlantic Shore Line.....	6	2,100								3	25			
16	Waterville and Fairfield.....								1	100					
MARYLAND.															
	Total for state.....	2	525	110	4	600	9	751	1	250	34	1,069	16	1,675	
1	United Railways.....	2	525	110	4	600	7	750			32	1,651	16	1,675	
2	Counterland and Westernport.....										2	18			
8	Hagerstown Railway.....						2	1	1	250					
MASSACHUSETTS.															
	Total for state.....	42	6,105	797	10	1,128	12	346	12	2,806	117	2,392	25	1,440	
1	Amesbury and Hampton.....										8	7			
2	Lexington and Boston.....			432											
4	Lowell and Fitchburg.....												1	2	
6	Old Colony Street Railway.....	3	735		1	100	4	225	2	200	10	479	14	404	
6	Boston and Northern.....		870		1	55	1	5	1	400	19	287	1	2	
7	Boston Elevated Railway.....				3	370					74	1,480			
9	Berkshire Street Railway.....	12	1,320				4	82	4	1,200					
15	Connecticut Valley Street Railway.....										1	30	1	640	
20	Boston and Worcester.....										5	49	6	222	
25	Holyoke Street Railway.....				1	300									
24	Milford and Uxbridge.....	3	450						1	150					
38	New Bedford and Onset.....				1	60									
39	Citizens Electric Street Railway.....										1	3			
40	Newton and Boston.....								1	6					
47	Brockton and Plymouth.....								1	250					
50	Springfield Street Railway.....	6	660						2	600					
68	Western Massachusetts Street Railway.....			365	1	75									
60	Worcester Consolidated.....	6	870		2	168					4	48			
62	Worcester and Southbridge.....	6	1,200				3	34					2	80	
MICHIGAN.															
	Total for state.....	44	11,235	785	4	755	10	755	8	2,450	11	355	42	1,445	
2	Bay City Traction.....				1	50	2	460							
3	Benton Harbor-St. Joe Railway and Light.....												2	750	
4	Detroit United Railway.....	6	1,500	510	2	600			2	700	1	150	3	70	
5	Detroit and Port Huron Shore Line.....	7	2,800				3	105	2	600	1	65	18	270	
6	Detroit, Jackson and Chicago.....	4	2,000		1	105							10	150	
7	Detroit, Monroe and Toledo Short Line.....	9	2,505				3	110	2	600			7	105	
9	Grand Rapids Railway.....	3	300						1	300	5	125			
11	Grand Rapids, Holland and Chicago.....	7	1,400										2	100	
12	Houghton County Street Railway.....	6	600												
14	Marquette County Gas and Electric.....			275					1	250					
16	Michigan United Railways.....										1	1			
17	Manistee Light and Traction.....										1	1			
18	Marquette City and Presque Isle.....										1	5			
21	Owosso and Corunna.....														
24	Trans-St. Mary's Traction.....	2	100								1	8			
MINNESOTA.															
	Total for state.....	164	2,187		1	270	1	50	3	445	25	335	16	79	
2	Duluth Street Railway.....														
3	Two City Rapid Transit.....	9	900			270	1	50	3	445	3	45			
5	Winona Railway and Light.....	155	1,287									200	16	79	
MISSISSIPPI.															
	Total for state.....	24	2,040				10	60	4	1,400	3	73	6	146	
1	Columbus Railway, Light and Power.....	2	84												
2	Delta Electric Light, Power and Manufacturing.....	2	60								1	5	2	25	
3	Gulfport and Mississippi Coast.....	15	1,710						4	1,400			2	80	
4	Jackson Electric Railway, Light and Power.....	2	50								1	33	1	33	
5	Meridian Light and Railway.....										1	15	1	10	
6	Southern Light and Traction.....						6	35							
8	Vicksburg Railway and Light.....	3	126				4	25							

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
MISSOURI.															
Total for state.....		13	1,053				3	150	4	1,425	37	1,321	18	124	
2	Water, Light and Transit.....	2	18								4	44			
6	Metropolitan Street Railway.....	8	650								31	1,270	18	124	
8	St. Joseph Railway, Light, Heat and Power.....						3	150	2	725	2	7			
10	United Railways.....														
12	Sedalia Light and Traction.....								2	700					
13	Springfield Traction.....														
14	Southwest Missouri Railroad.....	3	375												
MONTANA.															
Total for state.....											6	62			
3	Butte Electric Railway.....										4	60			
5	Helena Light and Railway.....										1	2			
NEBRASKA.															
Total for state.....		2	1,400						3	1,800	10	239	5	14	
3	Lincoln Traction.....								1	300					
6	Omaha and Council Bluffs.....	2	1,400						2	1,200	10	239	5	14	
NEW HAMPSHIRE.															
Total for state.....				516	1	50					3	7	17	50	
2	Claremont Railway and Lighting.....			252											
6	Dover, Somersworth and Rochester.....											2	6		
6	Exeter, Hampton and Amesbury.....											2	6		
7	Hudson, Pelham and Salem.....										2	6	8	24	
8	Keene Electric Railway.....			264											
9	Laconia Street Railway.....												1	2	
13	Haverhill, Plainfield and Newton.....										1	1	2	6	
14	Portsmouth Electric Railway (Boston and Maine).....				1	80									
15	Portsmouth and Exeter.....												2	6	
NEW JERSEY.															
Total for state.....		23	11,100	480	7	1,020	18	982	8	5,100	32	142	37	166	
1	Atlantic Coast Electric Railway.....	3	1,800				1	45	1	500			1	60	
3	West Jersey and Seashore (Atlantic City and Longport branch).....				1	100									
4	Atlantic City and Suburban.....				1	275					1	5			
7	West Jersey and Seashore (Camden and Atlantic City branch).....	12	8,400				3	225			14	23	16	73	
10	New Jersey and Hudson River Railway and Ferry.....	4	60				2	24	1	750	1	5	3	15	
11	Jersey Central Traction.....	2	150								4	40			
14	Burlington County Railway.....				1	300					1	8			
22	Public Service Railway.....	1	150		3	270	12	685	6	3,800	10	46	17	18	
23	Trenton Street Railway.....			480							1	15			
25	Trenton and New Brunswick.....				1	75									
NEW MEXICO.															
Total for territory.....		1	25												
2	Las Vegas Railway and Power.....	1	25												
NEW YORK.															
Total for state.....		73	17,645	1,374	12	1,750	34	2,830	19	8,265	67	357	142	2,810	
1	Albany and Hudson Railroad.....	3	600						1	300	3	3	4	8	
2	United Traction.....										2	60			
3	Hudson Valley Railway.....	3	330				1	6							
6	Binghamton Railway.....	6	600	200					2	300			1	230	
9	International Railway.....				2	200	2	100			12	33	9	37	
11	Buffalo and Depew.....										1	3			
13	Buffalo and Lake Erie.....	2	200		1	30									
16	Elmira Water, Light and Railroad.....	13	2,375	280			5	110	2	1,105					
24	Fonda, Johnstown and Gloversville.....	2	200								3	15	6	12	
26	New York and Long Island.....	3	900		1	120	2	60							
29	Huntington Railroad.....			479											
31	Jamestown Street Railway.....								2	750					
32	Chautauque Traction.....								2	750					
34	Kingston Consolidated.....										3	37			
39	New York City Railway.....						6	875					37	334	
48	Interborough Rapid Transit.....	12	4,800		2	350			3	2,400					
51	Brooklyn Heights Railroad.....				1	500					9	42	13	520	
52	Nassau Electric.....														
53	Brooklyn Union Elevated.....										6	24	7	280	
55	South Brooklyn Railway.....										3	14	4	160	
58	Transit Development Co.....	9	450	120			7	1,050			18	95	22	900	
63	New York and Queens County.....						1	30			1	8	3	170	
64	Long Island Electric.....												2	3	
66	Statens Island Midland.....						1	300							
67	Richmond Light and Railroad.....								1	500					
73	Western New York and Pennsylvania.....	6	1,320		2	130	2	100			1	4	10	50	
75	Orangetown and Mohawk Valley.....				1	100	2	50					8	16	
78	Peekskill Lighting and Railroad.....										1	2			

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
NEW YORK—Continued.															
84	Poughkeepsie City and Wappingers Falls	2	800		2	300			2	500			1	3	
85	Rochester Railway												3		
88	Rochester, Syracuse and Eastern	9	4,050						2	800					
89	Rochester and Eastern Rapid Railway							2	75						
92	Schenectady Railway			240							3	3	11	11	
96	Syracuse and Suburban										1	10			
98	Auburn and Syracuse	3	900					3	85	2	800		1	60	
NORTH CAROLINA.															
	Total for state.	52	5,162	204	1	220	19	220	8	1,700	2	15	13	123	
1	Asheville Electric	13	1,005				4	36	2	600	1	10	5	10	
3	Charlotte Electric Railway, Light and Power						2	4			1	5			
4	Durham Traction	9	244				3	36	1	200			7	105	
6	Greensboro Electric	1	14				3	21					1	8	
8	Raleigh Electric						4	65							
10	Tide Water Power	9	900	204			2	40	3	450					
11	Price Manufacturing and Power	20	2,325		1	220	1	18	3	450					
OHIO.															
	Total for state.	175	37,977	2,484	19	2,597	30	2,717	30	10,325	63	2,299	54	1,164	
1	Northern Ohio	19	2,490		1	125	2	1,300	3	900	13	134	15	206	
2	Stark Electric	6	1,500				2	60	2	500					
4	Pennsylvania and Ohio	3	225				2	50	2	475	1	10			
5	Lake Erie, Bowling Green and Napoleon				1	45									
7	Chillicothe Electric	8	161												
8	Cincinnati Traction										1	200			
11	Cincinnati Northern Traction			204			1	30							
12	Cincinnati and Columbus	6	1,800						1	400					
15	Interurban Railway and Terminal	9	1,050						3	900	1	5			
16	Cleveland Electric Railway				2	1,000					20	960			
19	Eastern Ohio Traction	1	250		1	100									
20	Cleveland, Southwestern and Columbus										6	90			
21	Cleveland, Painesville and Eastern			336											
24	Columbus Railway and Light			290	1	50									
26	Scioto Valley Traction	6	2,220				3	300			9	110	1	20	
27	Columbus, Delaware and Marion	3	1,800				2	70					5	15	
28	Ohio Electric Railway	21	6,950	264	5	603	2	288	4	1,050	1	10	4	175	
29	City Railway			264	1	45									
30	Peoples Railway			264	1	96									
31	Oakwood Street Railway										1	5			
32	Dayton and Troy				2	200					1	200			
33	Dayton, Covington and Piqua										1	35			
43	Western Ohio Railway	7	1,400				4	100	2	400	1	70			
44	Lorain Street Railroad										1	5			
45	Mansfield Railway, Light and Power	1	15	10	1	90			1	300					
47	Mount Vernon Railway and Light	3	90												
51	Portsmouth Street Railroad	9	1,440				2	100	1	200	1	8			
54	Springfield Railway			264	1	43					12	106			
55	Springfield, Troy and Piqua	6	1,080						2	600					
57	Springfield and Xenia										1	7			
59	Steubenville and East Liverpool	4	550				2	55			1	7	3	819	
62	Toledo Railways and Light	42	2,216		2	200			3	2,400	5	90	11	245	
63	Toledo Urban and Interurban	6	2,250				2	150	1	400	5	230	7	105	
64	Toledo and Indiana												4	4	
65	Lake Shore	12	9,000						4	1,600			1	15	
67	Toledo, Port Clinton and Lakeside	3	1,500				2	100	1	400					
68	Toledo and Western						3	39							
71	Youngstown and Southern										1	15			
72	Mahoning and Sheanango			528			1	75							
OKLAHOMA.															
	Total for state.						2	52							
3	Choctaw Railway						2	52							
OREGON.															
	Total for state.								1	50					
4	Forest Grove Transportation								1	50					
PENNSYLVANIA.															
	Total for state.	105	33,906	2,161	22	2,721	13	1,113	25	9,400	582	8,279	43	811	
1	Lehigh Valley Transit	17	2,545						4	1,800					
2	Altoona and Logan Valley			264	1	46					17	174			
4	Beaver Valley Traction			264							2	35			
6	Columbia and Montour	3	75												
8	Pittsburg and Butler	4	3,000				3	104					1	15	
13	Chester Traction				1	125									
20	Westmoreland County Railway														
21	Philadelphia and Easton	3	510												
26	Northampton Traction			261	1	22									
30	Conneaut and Erie			264	1	43									
36	Central Pennsylvania Traction			288							2	15			
37	Lehigh Traction										1	10			
38	Wilkes-Barre and Hazleton	6	2,260						3	1,200					
39	Hummelstown and Campbelltown			265	1	100									

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
PENNSYLVANIA—Continued.															
41	Juniata Valley Electric										1	75	1	75	
48	Kittanning and Leechburg							1	9						
52	Pittsburg and Allegheny Valley	1	75												
56	Lykens and Williams Valley										1	32			
60	Schuylkill Valley Traction	6	1,200		1	200			4	1,000	2	238			
72	Citizens Traction	12	1,200						2	1,000			4	120	
75	Philadelphia Rapid Transit	6	1,200	270	7	1,235	5	580			410	1,507	34	572	
77	Philadelphia, Bristol and Trenton				1	100					2	2			
78	Philadelphia and West Chester										2	45	1	15	
80	Fairmount Park Transportation										1	15			
82	Philadelphia and Western	4	5,000				2	150	2	1,000	4	38	2	0	
83	Centre and Unionfield	9	675						2	400					
85	Pittsburg Railway	10	6,500		1	150					120	2,581			
87	Duquesne Incline Plane										1	10			
89	West Penn Railway	12	7,500			50			4	1,000	3	55			
93	Jefferson Traction				1	100									
94	United Traction				1	230									
97	Albion and Reading				1	25	2	270							
98	Ohio Valley Railway	3	840						2	400					
100	Scranton Railway										9	300			
102	Shamokin and Mount Carmel				1	75									
110	Warren Street Railway			265							1	7			
111	Warren and Jamestown	4	600		1	20			1	300					
112	Washington and Chambersburg										1	20			
115	Wilkes-Barre and Wyoming Valley	4	100		1	300					2	30			
121	Trenton, New Hope and Lambertville								1	300					
RHODE ISLAND.															
	Total for state	12	3,900				3	65	4	3,950	48	873	2	4	
1	Sea View Railroad	6	525					3	63	1	200	2	33		
2	Rhode Island Company	6	3,375						2	3,000	45	830	2	4	
4	New York, New Haven and Hartford								1	750					
5	Providence and Danielson										1	10			
SOUTH CAROLINA.															
	Total for state	3	675		1	165	5	162	3	500	4	18	4	1,075	
1	Anderson Traction												1	600	
2	Augusta and Aiken	3	675						1	200					
3	Charleston Consolidated Railway, Gas and Electric				1	165					3	10			
4	Columbia Electric Street Railway, Light and Power						3	162					2	400	
5	Greenville Traction								2	300	1	8	1	75	
TENNESSEE.															
	Total for state	15	1,980		2	260			11	5,950	3	19	6	102	
4	Jackson Railway and Light												2	22	
6	Knoxville Railway and Light	15	1,980						5	1,950	2	14	4	80	
7	Lookout Mountain Railway										1	5			
8	Memphis Street Railway				1	160									
9	Nashville Railway and Light				1	100			6	4,000					
TEXAS.															
	Total for state	14	1,950				7	215	3	900	4	80	12	391	
1	Austin Electric Railway										2	25			
10	El Paso Electric Railway	5	150				4	110	2	600			8	275	
12	Northern Texas Traction	9	1,800				3	105					3	95	
13	Galveston Electric								1	300					
15	Laredo Electric and Railway										1	5	1	20	
21	Belton and Temple Traction										1	50			
UTAH.															
	Total for state	17	4,500				10	411			3	22	11	77	
3	Utah Light and Railway	17	4,500				10	411			3	22	11	77	
VERMONT.															
	Total for state	3	225	703			2	40	1	200	5	42	1	280	
1	Barre and Montpelier										1	2			
4	Twin State Gas and Electric	3	225						1	200	1	10			
5	Burlington Traction			202											
6	Rutland Railway, Light and Power						2	40							
7	St. Albans Street Railway			241							3	30	1	280	
8	Springfield Electric			290											
VIRGINIA.															
	Total for state	21	3,130	280	2	245	13	335	9	3,500	10	163	15	447	
2	Charlottesville and Albemarle						4	70			1	3			
3	Danville Railway and Electric														
5	Lynchburg Traction and Light	11	1,780				5	135	3	700	3	12	2	8	
7	Newport News and Old Point Railway and Electric										1	30	5	73	
9	Norfolk and Southern	1	550				3	110	1	500	3	17	6	16	
14	Richmond and Chesapeake Bay												1	150	
15	Virginia Passenger and Power	3	300	280	1	125	1	20	3	1,500					
16	Richmond Passenger and Power				1	120					1	1			

SUPPLEMENTARY TABLE 3.—AUXILIARY ELECTRIC EQUIPMENT—Continued.*

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	TRANSFORMERS.		Storage-battery cells, number.	BOOSTERS FOR OUTSIDE FEEDERS.		AUXILIARY GENERATORS.		ROTARIES AND MOTOR-GENERATOR SETS.		ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK.				
		No.	K. W.		No.	K. W.	No.	K. W.	No.	K. W.	Direct current.		Alternating current.		
											No.	H. P.	No.	H. P.	
VIRGINIA—Continued.															
19	Roanoke Railway and Electric	3	125										1	200	
20	Blue Ridge Light and Power										1	100			
23	Great Falls and Old Dominion	3	375						2	800					
WASHINGTON.															
	Total for state	30	7,232	1,870	1	15	6	203	14	6,450	11	137	1	2	
2	Whatcom County Railway	3	102		1	15	2	30			2	45	1	2	
3	Puget Sound International Railway	5	150				2	48	1	250	7	62			
4	Olympia Light and Power								1	200					
7	Seattle Electric	22	7,000	1,870					12	6,000	2	30			
10	Spokane and Inland Empire														
13	Tacoma Railway and Power						2	125							
WEST VIRGINIA.															
	Total for state	9	1,600						2	600			2	10	
2	Fairmont and Clarksburg	9	1,600						2	600			2	10	
6	Mannington Light and Power														
WISCONSIN.															
	Total for state	20	5,185	880	3	358	9	745	5	1,350	30	1,015	31	631	
4	Milwaukee Northern	3	1,500						2	600			6	150	
5	Chippewa Valley Railway, Light and Power	4	2,400				1	300							
6	Eastern Wisconsin Railway and Light				1	200									
7	Green Bay Traction	6	450				2	75	2	600	1	1			
14	Merrill Railway and Lighting			240	1	8									
15	Milwaukee Electric Railway and Light	13	655	680			5	350			33	722	22	466	
16	Milwaukee Light, Heat and Traction										2	10	3	15	
17	Winnebago Traction	3	180						1	150	1	15			
18	Shelbygan Light, Power and Railway				1	150	1	20							
20	Wausau Street Railroad										2	267			
OUTLYING DISTRICTS															
	Total for territory	2	30				6	60			8	47			
HAWAII.															
	Total for territory										7	27			
1	Honolulu Rapid Transit and Land										7	27			
PORTO RICO.															
	Total	2	30				6	60			1	20			
12	Ponce Railway and Light	2	30				3	34			1	20			
13	San Juan Light and Transit						3	25							

STREET AND ELECTRIC RAILWAYS.

SUPPLEMENTARY TABLE 4.—SUBSTATION EQUIPMENT.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	ROTARY CONVERTERS, MOTOR-GENERATORS, ETC.		TRANSFORMERS.		Storage-battery cells, number.	MISCELLANEOUS.	
		No.	K. W.	No.	K. W.		No.	K. W.
	UNITED STATES	1,619	845,985	3,671	889,704	47,205	41	9,297
	ALABAMA.							
	Total for state	4	1,400	14	1,625			
2	Birmingham Railway, Light and Power	4	1,400	14	1,625			
	ARKANSAS.							
	Total for state	4	800	5	236		3	35
2	Fort Smith Light and Traction			5	236			
4	Little Rock Railway and Electric	4	800				3	35
	CALIFORNIA.							
	Total for state	119	61,565	208	97,201	1,056	2	4,004
3	Northern Electric	13	5,200	8	30,200			
10	Los Angeles Railway	10	9,000	39	13,950	264		
11	Pacific Electric	21	11,800	45	14,925	264		
12	Los Angeles Pacific	15	6,950	53	9,726	264		
13	Los Angeles Interurban	15	7,200	25	9,650			
15	Vallejo, Benicia and Napa Valley	2	800	2	1,000			
19	Santa Clara Interurban	1	110				1	4
22	Los Angeles and Redondo	7	1,200	8	900			
23	East Shore and Suburban	2	500	3	200			
24	Riverside and Arlington	4	675					
26	San Bernardino Valley Traction							
32	United Railroads of San Francisco	19	15,750	19	15,750		1	4,000
34	San Jose and Santa Clara County	2	350	6	460	264		
35	San Jose-Los Gatos Interurban	1	720					
36	Santa Barbara Consolidated							
37	Union Traction	4	360					
	COLORADO.							
	Total for state	15	4,524	31	5,790	264		
1	Boulder Electric Light and Power	3	224	3	600			
3	Colorado Springs and Cripple Creek	3	900	10	1,050			
4	Denver City Traction	7	2,400	15	3,210			
10	Pueblo and Suburban Traction and Lighting	2	600	8	900	264		
	CONNECTICUT.							
	Total for state	24	7,400	52	19,198		10	162
6	New York, New Haven and Hartford Railroad	20	6,100	40	17,068		10	162
7	New London and East Lyme Street Railway	2	600	6	450			
8	Norwich and Westerly Railway	2	700	6	750			
	DISTRICT OF COLUMBIA.							
	Total for district	3	5,000	9	3,375	260	1	100
2	Brightwood Railway ¹							
4	Capital Traction	3	3,000	9	3,375	260	1	100
6	City and Suburban of Washington ¹							
	FLORIDA.							
	Total for state	2	400	8	9,600	180	1	132
10	Tampa Electric	2	400	8	9,600	180	1	132
	GEORGIA.							
	Total for state	15	7,150	30	9,080	614	6	2
1	Athens Electric Railway	1	150	6	900	150		
2	Georgia Railway and Electric	9	7,500	12	6,200	144	6	2
3	Atlanta Northern Railway			7	1,050			
7	Gainesville Electric Railway	1	300	2	250			
8	Macon Railway and Light	2	800	3	540			
9	Rome Railway and Light	2	400					
10	Savannah Electric					320		
	IDAHO.							
	Total for state	2	600	6	600			
2	Boise and Interurban Railway	2	600	6	600			
	ILLINOIS.							
	Total for state	114	77,330	360	95,965	4,080	5	255
1	Alton, Granite and St. Louis			9	2,205			
7	Peoria, Bloomington and Champaign			5	1,200			
11	Urbana and Champaign			6	1,050			
12	St. Louis, Decatur and Champaign	3	900	9	900			
13	Danville, Urbana and Champaign	5	1,500	15	1,650			
14	Chicago City Railway	15	22,000	45	24,750	165		
15	Chicago Union Traction	5	10,000	15	12,000	55		
17	Calumet Electric Street Railway	1	300	1	300			
22	Northwestern Elevated Railroad	3	6,000	9	6,000	553		
24	Metropolitan West Side Elevated	4	6,000	12	6,000	1,143		
26	Chicago and Oak Park Elevated Railroad	6	6,000	18	6,000			
27	Chicago and Milwaukee	13	5,500	51	10,710	1,037		
28	Chicago and Joliet	6	1,500	13	1,790	964	3	125

¹ Substation equipment owned and reported by Potomac Electric Power Company (a central electric-light and power station).

SUPPLEMENTARY TABLE 4.—SUBSTATION EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	ROTARY CONVERTERS, MOTOR-GENERATOR SETS, ETC.		TRANSFORMERS.		Storage-battery cells, number.	MISCELLANEOUS.	
		No.	K. W.	No.	K. W.		No.	K. W.
ILLINOIS—Continued.								
30	Decatur Railway and Light.	2	130	6	150			
31	Illinois Central Traction.	4	1,200	12	1,320			
32	Chicago, Bloomington and Decatur.	3	900	9	1,350			
34	Sterling, Dixon and Eastern.	1	550	3	330			
36	East St. Louis and Suburban.	6	1,400	8	880	225	2	130
37	Elgin and Belvidere.	1	300	3	150			
40	Peoples Traction.	1	150	3	150			
44	Chicago and Southern Traction.	3	1,500	9	1,320			
46	St. Louis and North Eastern.	4	1,200	12	1,320	200		
52	Illinois Valley Railway.	2	600	6	900	218		
54	Coal Bait Electric Railway.					240		
65	Rockford and Interurban.	10	2,100	30	2,355			
67	St. Louis and Springfield.	4	1,200	12	1,320			
68	Springfield and North Eastern.			4	800			
70	Aurora, Elgin and Chicago.	12	6,000	34	6,655			
INDIANA.								
Total for state.		133	34,854	256	30,253	5,468		
1	Indiana Union Traction.	60	11,604	86	600	4,056		
3	Marion, Bluffton and Eastern.	4	1,200	12	1,200			
6	Indianapolis, Columbus and Southern.	5	1,500	16	1,320			
8	Evansville and Southern Indiana.	1	300	3	300			
9	Evansville Railways.	1	300	3	900			
10	Evansville Suburban and Newburgh.	2	600	2	600			
11	Fort Wayne and Wabash Valley.	13	4,450	36	3,270			
13	Hammond, Whiting and East Chicago.	1	300	3	330			
14	Indianapolis Traction and Terminal.	1	1,500	4	8,000			
15	Terre Haute, Indianapolis and Eastern.	31	9,250	43	9,800	524		
16	Indianapolis and Cincinnati.			18	5,400			
17	Indianapolis, Crawfordsville and Western.	3	900	3	330			
18	Toledo and Chicago Interurban.			2	400			
19	Kokomo, Marion and Western.	3	350	3	450	286		
24	Louisville and Northern.	1	300	3	330			
26	Muncie and Portland.	2	600	4	608			
29	Southern Michigan Railway.	3	1,100	9	1,665			
32	Winona Interurban Railway.	2	600	6	660			
IOWA.								
Total for state.		23	8,100	60	8,925	380		
3	Fort Dodge, Des Moines and Southern.	6	2,400	18	2,700			
7	Cedar Rapids and Iowa City.	3	900	11	2,445			
10	Iowa and Illinois Railway.	3	900	9	900			
11	Tri-City Railway.	5	1,800	6	980	164		
12	Des Moines City Railway.	1	750	3	750			
13	Interurban Railway.	4	1,200	12	1,200			
24	Waterloo, Cedar Falls and Northern.	1	150	1	50	216		
KANSAS.								
Total for state.		9	3,650	17	4,195		1	90
6	Union Traction.	2	600	6	900			
9	Kansas City-Western Railway.	7	2,050	11	3,295			
15	Topeka Railway.						1	90
KENTUCKY.								
Total for state.		19	9,225	57	10,110			
2	Cincinnati, Newport and Covington.	2	600	6	675			
5	Blue Grass Traction.	2	600	6	600			
6	Central Kentucky Traction.	2	600	6	450			
7	Louisville Railway.	12	7,400	36	8,100			
8	Louisville and Eastern.	1	225	3	225			
LOUISIANA.								
Total for state.		5	2,150	15	2,324	59		
7	New Orleans Railway and Light.	3	1,500	8	1,074			
8	New Orleans and Carrollton.	1	500	4	1,100	59		
10	Algiers Railway and Lighting.	1	150	3	150			
MAINE.								
Total for state.		18	4,000	60	4,930	3,718		
1	Bangor Railway and Electric.	3	1,300	22	2,420	1,011		
3	Portland and Brunswick.	2	300	3	150	216		
8	Lewiston, Augusta and Waterville.	5	1,250	14	1,465	270		
10	Portland Railroad.					742		
13	Atlantic Shore Line.	6	850	16	800	746		
15	Auburn and Turner.	1	200	3	75	244		
16	Waterville and Fairfield.	1	100	2	100	267		
17	Waterville and Oakland.					220		
MARYLAND.								
Total for state.		26	22,900	77	25,027	309		
1	United Railways.	22	22,000	67	24,075	55		
6	Hagerstown and Myersville.	1	250	3	262			
8	Hagerstown Railway.	2	500	6	525			
11	Washington, Herwyn and Laurel.	1	150	1	165			
13	Washington and Rockville.					254		

SUPPLEMENTARY TABLE 4.—SUBSTATION EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	ROTARY CONVERTERS, MOTOR-GENERATORS, ETC.		TRANSFORMERS.		Storage-battery cells, number.	MISCELLANEOUS.	
		No.	K. W.	No.	K. W.		No.	K. W.
MASSACHUSETTS.								
	Total for state.....	58	20,450	128	23,755	1,855	2	575
1	Amesbury and Hampton.....	2	550	6	600			
2	Interstate Consolidated.....	1	600	3	450			
4	Lowell and Fitchburg.....	2	450	4	400			
5	Old Colony Street Railway.....	18	10,050	18	11,055		2	575
6	Boston and Northern.....	5	600	15	705			
7	Boston Elevated Railway.....	3	800	6	1,275	270		
9	Berkshire Street Railway.....	4	1,200	12	1,320			
15	Connecticut Valley Street Railway.....	1	200	3	225	220		
19	Fitchburg and Leominster.....					286		
20	Boston and Worcester.....	11	3,800	28	4,335			
25	Holyoke Street Railway.....					215		
34	Milford and Uxbridge.....	1	150	3	450	480		
39	Citizens Electric Street Railway.....	2	600	6	660			
47	Brockton and Plymouth.....	2	400	12	1,020			
60	Worcester Consolidated.....	2	600	6	660	384		
62	Worcester and Southbridge.....	4	850	6	450			
MICHIGAN.								
	Total for state.....	32	13,000	113	15,500	276	2	300
2	Ray City Traction.....					276		
3	Beaumont Harbor-St. Joe Railway and Light.....	1	300					
4	Detroit United Railway.....	3	750	9	1,125			
5	Detroit and Port Huron Shore Line.....	17	3,750	33	4,950		1	150
6	Detroit, Jackson and Chicago.....	10	2,500	18	3,300		1	150
7	Detroit, Monroe and Toledo Short Line.....	7	1,800	13	2,010			
10	Grand Rapids, Grand Haven and Muskegon.....	4	1,000	6	1,200			
11	Grand Rapids, Holland and Chicago.....	6	1,800	21	1,350			
12	Houghton County Street Railway.....	2	500	6	600			
16	Michigan United Railways.....	2	600	7	1,025			
MINNESOTA.								
	Total for state.....	34	27,380	84	29,955	576		
3	Twin City Rapid Transit.....	34	27,380	84	29,955	576		
MISSISSIPPI.								
	Total for state.....	6	1,500	13	1,530			
3	Gulfport and Mississippi Coast.....	2	400	9	780			
4	Jackson Electric Railway, Light and Power.....	2	500					
5	Meridian Light and Railway.....	2	600	6	750			
MISSOURI.								
	Total for state.....	53	40,050	70	29,550	588	1	350
5	Kansas City and Westport Belt.....	1	750					
6	Metropolitan Street Railway.....	15	13,250					
10	Union Pacific.....	30	23,800	19	27,450	588	1	350
14	Southwest Missouri Railroad.....	7	2,150	21	2,100			
MONTANA.								
	Total for state.....	6	512	3	420			
5	Helena Light and Railway.....	6	512	3	420			
NEBRASKA.								
	Total for state.....	3	1,000	3	2,075			
5	Omaha and Council Bluffs.....	3	1,000	3	2,075			
NEW HAMPSHIRE.								
	Total for state.....	20	6,000	50	7,140	1,538	6	678
1	Berlin Street Railway.....					230		
3	Boston and Maine Electric branch.....	2	600	6	600	528		
5	Dover, Somersworth and Rochester.....	2	600	6	600	540	1	18
6	Exeter, Hampton and Amesbury.....	2	600	8	870		1	60
7	Hudson, Pelham and Salem.....	8	2,400	21	2,610		1	600
9	Laconia Street Railway.....					230		
10	Manchester and Derry.....	1	300	3	330			
12	Manchester and Nashua.....	2	600	3	750			
13	Haverhill, Plaistow and Newton.....	2	600	6	660			
15	Portsmouth and Exeter.....	1	300	3	330			
NEW JERSEY.								
	Total for state.....	53	37,375	102	26,430	924	1	14
5	Atlantic City and Shore.....	2	600	6	600			
6	Bridgeton and Millville.....	4	600	8	480	264	1	14
7	West Jersey and Seashore (Camden and Atlantic City branch).....	23	17,000	66	18,780			
10	New Jersey and Hudson River Railway and Ferry.....	2	600	6	600			
11	Jersey Central Traction.....	1	275	2	800			
15	Public Service Railway.....	22	18,300	14	5,250			
22	Trenton Street Railway.....					660		
NEW YORK.								
	Total for state.....	338	270,730	600	179,960	5,785	17	900
1	Albany and Hudson Railroad.....	6	1,000	35	5,050			
2	United Traction.....	13	5,305	39	6,450	528		
3	Hudson Valley Railway.....	11	4,200	26	4,950	232		
7	Eastern New York Railroad.....	1	300	4	740			
9	Binghamton Railway.....	2	300	9	675			

SUPPLEMENTARY TABLE 4.—SUBSTATION EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	ROTARY CONVERTERS, MOTOR-GENERATOR SETS, ETC.		TRANSFORMERS.		Storage-battery cells, number.	MISCELLANEOUS.	
		No.	K. W.	No.	K. W.		No.	K. W.
NEW YORK—Continued.								
9	International Railway.....	35	18,375	74	21,550	1,438		
19	Elmira and Seneca Lake.....	2	800	2	285			
22	Glen Cove Railroad.....			2	200			
24	Fonda, Johnstown and Gloversville.....	9	2,700	9	2,970			
26	New York and Long Island.....	2	400	3	600	270	1	22
30	Ithaca Street Railway.....			3	450			
32	Chautauqua Traction.....	4	1,100	12	1,200			
37	Orange County Traction.....	1	150	1	225			
39	New York City Railway.....	39	39,000	123	46,125	1,711		
44	Yonkers Railroad.....	3	1,500	9	1,575			
45	Union Railway.....	4	4,000	12	4,500			
47	Westchester Electric Railroad.....	3	1,500	11	1,575			
48	Interborough Rapid Transit.....	84	126,000	15	8,250	110	16	938
51	Brooklyn Heights Railroad.....	13	1,000	39	400			
53	Brooklyn Union Elevated.....	7	7,000	21	8,400			
55	South Brooklyn Railway.....	4	1,000	13	4,450			
58	Transit Development Co.....	22	28,000	66	27,150			
63	New York and Queens County.....	7	8,000	19	4,750	264		
64	Long Island Electric.....	2	1,000	3	1,500			
73	Western New York and Pennsylvania.....	7	2,100	10	2,300			
74	Onondaga Railway.....	8	2,400	8	2,400	220		
75	Oneonta and Mohawk Valley.....	6	1,800	18	2,160	264		
78	Peekskill Lighting and Railroad.....					264		
86	Rochester Railway.....	4	1,400	12	1,500	364		
88	Rochester, Syracuse and Eastern.....	6	2,600	12	2,000			
89	Rochester and Eastern Rapid Railway.....	4	2,400	12	2,400			
91	New York and North Shore.....	2	600	4	600			
92	Schenectady Railway.....	16	6,600	36	6,560	165		
95	Syracuse Rapid Transit.....	3	3,000	3	3,000	26		
96	Auburn and Syracuse.....	4	1,600	13	2,700			
NORTH CAROLINA.								
	Total for state.....	3	650	78	2,705			
2	Asheville Rapid Transit.....	1	300	3	330			
8	Raleigh Electric.....			3	300			
10	Tide Water Power.....	2	350	7	475			
11	Pries Manufacturing and Power.....			66	1,600			
OHIO.								
	Total for state.....	186	61,880	233	56,845	4,043	3	785
1	Northern Ohio.....	11	5,100	30	3,930	528		
2	Stark Electric.....	4	1,000	6	1,200			
4	Pennsylvania and Ohio.....	1	225	3	675			
6	Cincinnati Traction.....	1	1,300	3	1,300			
11	Cincinnati Northern Traction.....	1	200	3	300			
12	Cincinnati and Columbus.....	4	1,600					
14	Cincinnati, Milford and Loveland.....	3	1,100	9	1,875			
15	Interurban Railway and Terminal.....	4	1,200	12	1,500			
16	Cleveland Electric Railway.....					1,023		
19	Eastern Ohio Traction.....	2	450	9	900	312		
20	Cleveland, Southwestern and Columbus.....	10	3,000	27	3,000			
24	Columbus Railway and Light.....	3	3,900			600		
26	Scioto Valley Traction.....	8	3,200	21	3,150			
27	Columbus, Delaware and Marion.....	1	1,000	14	1,020			
28	Ohio Electric Railway.....	27	7,200	15	2,100	264	1	35
34	East Liverpool Traction and Light.....	2	220	10	750			
41	Lancaster Traction and Power.....			21	4,200	240		
44	Western Ohio Railway.....	3	1,200	9	1,350			
48	Sandusky, Norwalk and Mansfield.....	2	660	2	700			
49	Cleveland, Painesville and Ashtabula.....	5	1,625	15	310			
51	Portsmouth Street Railroad.....	1	200	8	960			
55	Springfield, Troy and Piqua.....	2	600	4	720			
58	Washington Traction.....	1	300	3	330			
59	Springfield and Xenia.....	2	600	6	900			
60	Steubenville and East Liverpool.....	2	600	8	6,880	232		
62	Toledo Railways and Light.....	3	1,400	5	1,550	500		
63	Toledo Urban and Interurban.....	4	1,600	10	1,650		2	750
64	Toledo and Indiana.....	5	1,800	15	1,650			
65	Lake Shore.....	20	9,200	30	6,675			
67	Toledo, Port Clinton and Lakeside.....	4	1,600	12	1,800			
68	Toledo and Western.....	9	2,360	27	2,580			
69	Toledo, Ottawa Beach and Northern.....	2	1,000	2	1,100			
71	Youngstown and Southern.....	3	900	8	1,200			
72	Mahoning and Shenango.....	7	1,600			264		
OKLAHOMA.								
	Total for state.....	2	720	6	720			
3	Choctaw Railway.....	2	720	6	720			
PENNSYLVANIA.								
	Total for state.....	144	64,101	345	74,946	7,118	10	429
1	Lehigh Valley Transit.....	6	1,500	18	2,160			
6	Columbia and Montour.....	2	6175	6	225			
8	Pittsburg and Butler.....	2	1,000	10	3,350			
20	Westmoreland County Railway.....			1	600			
21	Philadelphia and Easton.....	3	750	6	510			
24	Bangor and Portland.....					236		
26	Northampton Traction.....					236	1	30
37	Lehigh Traction.....	3	1,200	9	1,350			
38	Wilkes-Barre and Hazleton.....	4	1,600	12	1,800			
48	Kittanning and Leechburg.....	1	250					
49	Conestoga Traction.....	13	3,400	37	3,916			

STREET AND ELECTRIC RAILWAYS.

SUPPLEMENTARY TABLE 4.—SUBSTATION EQUIPMENT—Continued.

Number.	STATE AND ABBREVIATED NAME OF COMPANY.	ROTARY CONVERTERS, MOTOR-GENERATOR SETS, ETC.		TRANSFORMERS.		Storage-battery cells, number.	MISCELLANEOUS.	
		No.	K. W.	No.	K. W.		No.	K. W.
PENNSYLVANIA—Continued.								
53	Valley Traction.....	2	600	6	660			
63	Meadville and Cambridge Springs.....	1	200	3	300			
64	Lancaster and York Furnace.....	2	450					
68	Rock County Electric.....	2	900	6	900			
69	Schenck Valley Traction.....	4	1,600	6	660			
72	Citizens Traction.....	1	300	3	900			
75	Philadelphia Rapid Transit.....	42	34,116	114	37,400	2,017		
78	Philadelphia and West Chester.....	2	500	10	1,250			
82	Philadelphia and Western.....	2	1,000	2	1,100	55		
83	Pittsburg Railways.....	19	6,000	26	5,950	2,776		290
86	West Penn Railway.....	26	6,900	36	9,450	330		
87	Allentown and Reading.....					471		
98	Olney Valley Railway.....	2	600	6	720			
107	Eastern Pennsylvania Railways.....						1	100
108	Allegheny Valley Street Railway.....	2	770					
109	Warren Street Railway.....	1	300	1	150			
111	Warren and Jamestown.....			2	300			
113	Chambersburg, Greensville and Waynesboro.....					486		
115	Wilkes-Barre and Wyoming Valley.....					264		
116	Wilkes-Barre, Dallas and Harvey & Lake.....	1	200	2	221			
121	Trenton, New Hope and Lambertville.....	1	300	3	555			
122	York Railways.....					247		
RHODE ISLAND.								
	Total for state.....	24	9,700	65	10,675	1,747	3	121
1	Sea View Railroad.....	1	200			250		
3	Rhode Island Company.....	17	7,700	47	8,875	576	3	121
4	New York, New Haven and Hartford.....	6	1,800	18	1,900	465		
5	Providence and Danielson.....					426		
SOUTH CAROLINA.								
	Total for state.....	5	1,100	22	1,655		4	200
2	Augusta and Aiken.....	1	200	3	600			
3	Charleston Consolidated Railway, Gas and Electric ..	1	300	10	399			
4	Columbia Electric Street Railway, Light and Power.....	3	600	9	675		4	200
TEXAS.								
	Total for state.....	10	3,250	18	3,225			
12	Northern Texas Traction.....	10	3,250	18	3,225			
UTAH.								
	Total for state.....	5	2,680	35	10,737			
1	Ordan Rapid Transit.....	1	300					
3	Utah Light and Railway.....	4	2,380	35	10,737			
VERMONT.								
	Total for state.....	8	3,740	17	6,050	788		
1	Barre and Montpelier.....	1	210			248		
2	Bellevue Falls and Saxtons River.....					260		
3	Bennington and North Adams.....	2	400	6	450			
6	Rutland Railway, Light and Power.....	3	3,130	11	5,000	280		
VIRGINIA.								
	Total for state.....	11	3,525	20	2,915	110		
7	Newport News and Old Point Railway and Electric.....	1	500					
9	Norfolk and Southern.....	5	1,700	15	2,240	110		
11	Richmond and Chesapeake Bay.....	1	100	2	300			
18	Richmond and Petersburg Electric.....	1	125					
22	Washington, Alexandria and Mt. Vernon.....	1	300					
23	Great Falls and Old Dominion.....	2	800	3	375			
WASHINGTON.								
	Total for state.....	24	10,300	82	46,705	3,231	3	105
2	Whatcom County Railway.....	1	500	6	3,000	500		
7	Seattle Electric.....	11	5,700	12	18,000	288		
10	Spokane and Inland Empire.....	1	1,300	43	16,625	1,867		
12	Port Sound Electric.....	3	900	7	1,400	576	3	105
13	Tacoma Railway and Power.....	3	1,500	14	7,680			
14	Walla Walla Valley Traction.....	2	500					
WEST VIRGINIA.								
	Total for state.....	13	2,450	35	4,540	858		
3	Fairmont and Clarksburg.....	5	1,200	22	3,290			
4	Camden Interstate Railway.....	8	1,250	16	1,250	570		
10	Parkersburg, Marietta and Interurban.....					288		
WISCONSIN.								
	Total for state.....	27	13,745	60	17,097	790		
4	Milwaukee Northern.....	6	2,500	18	9,000			
5	Chippewa Valley Railway, Light and Power.....	1	225			264		
7	Green Bay Traction.....	2	400	6	450			
15	Milwaukee Electric Railway and Light.....	12	7,850	19	3,875	120		
18	Milwaukee Light, Heat and Traction.....	5	2,920	14	3,662	120		
17	Winneshago Traction.....	1	150	3	180			
18	Sheboygan Light, Power and Railway.....					276		

APPENDICES

APPENDIX A.—SCHEDULE

APPENDIX B.—INSTRUCTIONS TO SPECIAL AGENTS

APPENDIX A.

SCHEDULE.

CENSUS OF ELECTRIC RAILWAYS, 1907.

(All electric roads and all street railroads, irrespective of kind of motive power, should be reported on this schedule. Separate supplementary reports should be made for nonoperating lessor companies, showing answers to inquiries 1 to 4, inclusive, 7, 18, 20, 21, and 22.)

Name of company.....
State..... City.....
General office (give state, city, street, and number).....

WASHINGTON, D. C., December 31, 1907.

The act of Congress of June 7, 1906, directs the Director of the Census to take a census of street railways every five years, and this schedule has been formulated for that purpose.

The information returned on this schedule should cover the business year of the company most nearly conforming to the year ending December 31, 1907. All questions that require a fixed time, such as mileage of track, cash on hand, etc., should be of the date of the last day of the year covered by the report.

The answers to inquiries in regard to financial matters, other than capitalization, will be held absolutely confidential; the separate reports will be combined so as to show totals for all companies in the different states. The information will be used only for the statistical purposes for which it is given.

The canvass is to be made under the supervision of Mr. W. M. Stewart, Chief Statistician for Manufactures.

S. N. D. NORTH,
Director of the Census.

Extract from act of Congress, March 3, 1899:

SEC. 22. "And every president, treasurer, secretary, director, agent, or other officer of every corporation, and every establishment of productive industry, whether conducted as a corporate body, limited liability company, or by private individuals, from which answers to any of the schedules, inquiries, or statistical interrogatories provided for by this act are herein required, who shall, if thereto requested by the Director, supervisor, enumerator, or special agent, willfully neglect or refuse to give true and complete answers to any inquiries authorized by this act, or shall willfully give false information, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined not exceeding ten thousand dollars, to which may be added imprisonment for a period not exceeding one year."

CERTIFICATE.

THIS IS TO CERTIFY that the information contained in this schedule is complete and correct to the best of my knowledge and belief, and it covers the period from 190 , to 190 .

(Signature and official designation of the person furnishing the information.)

(Address of person furnishing the information.)

(Signature of Special Agent.)

Each question should be answered; if not applicable use word "None."

Inquiries 1 to 23, inclusive, relate to Electric or Street Railways. Inquiries 24 to 26, inclusive, to Electric Light and Power Plants operated by railway companies. Separate reports should be prepared for electric light and power plants on Form B 2-231. If it is not possible to make complete separate reports, one combined report may be made on this schedule for railways and light and power plants, showing number of lamps, itemized income, etc., of the light and power plants, as called for by inquiries 24 to 26, inclusive.

1. If a consolidated company, give names of constituent companies for which complete report is included in this return, or write same on last page.
2. If a controlling company, give names of subsidiary or leased companies for which operating report is included in this return, or write same on last page. (If operating company can not furnish the supplementary report of financial data for nonoperating lessor companies (see instructions on title page), please give name and address from whom obtainable.)

3. If a reorganized company, give name of original company.
4. If a subsidiary or leased company, give name and address of operating company or lessee.
5. Is electric current generated for sale for light or power?..... If so, is there a separate power plant or line construction?..... Are data for electric light and power plant included in this report, or is separate report made for same?
6. Give name of city or cities in which the road is operated, and if in rural districts name the towns, counties, and states, or write same on last page.
7. TRACK: Length in single-track miles*—The totals reported for the first and second sections—"Classification by character and ownership" and "Classification by kind of system"—should agree.

CLASSIFICATION BY CHARACTER AND OWNERSHIP.	Owned.	Leased.	Operated under trackage rights.	Total operated.*
Length of road (first main track).....				
Length of second main track.....				
TOTAL LENGTH OF MAIN TRACK.....				
Length of sidings and turnouts, including car barns, storage yards, etc.....				
TOTAL COMPUTED AS SINGLE TRACK.....				

CLASSIFICATION BY KIND OF SYSTEM.	Subway and tunnels.	Elevated.	Surface.	Total operated.*
Operated by:				
Overhead trolley.....				
Conduit trolley.....				
Third rail.....				
Cable.....				
Steam.....				
Animal.....				
Other (state kind).....				
TOTAL.....				

If track extends into more than one state, give the number of single-track miles* (in each state. (The total operated as reported above should be segregated by states.)

* Length to be stated in miles and decimals of a mile carried to two places.

	Length in single-track miles.*
Total track operated on private right of way owned by railway companies.....	
Total track operated on private right of way not owned by railway companies (do not include track on streets or thoroughfares).....	
Total track operated within city or municipal limits (include any city, town, or village not rural in character).....	
Constructed and opened for operation during the year covered by this report.....	
Weight of steel rails per yard, maximum (pounds)....., minimum (pounds).....	
Style of rail (girder, T, half groove, full groove, etc.).....	

8. OVERHEAD ELECTRIC-LINE CONSTRUCTION.	LENGTH OF LINE, MILES.*			
	Total.	Span wire.	Side bracket.	Center pole.
Overhead trolley.....				
Miles of line with steel, iron, or concrete poles *.....				
Miles of line with wooden poles *.....				
Number of poles to the mile.....				

9. CARS: Account for all cars operated, ready for operation, or being repaired. Do not count a car more than once. Cars reported as "Express, freight, and mail cars," must be devoted solely to one or more of these specified uses.

	Total number.	Motor cars, number.	Trailers, number.
Closed passenger cars.....			
Open passenger cars.....			
Combination cars (open and closed).....			
Combination cars (passenger, with express, freight, or mail).....			
Parlor, sleeping, dining, and private cars (state which).....			
TOTAL PASSENGER CARS.....			
Express, freight, and mail cars.....			
Work cars.....			
TOTAL CARS.....			
Snow plows, number.....			
Sweepers, number.....			
Locomotives, number (steam or electric (state kind)).....			

10. EQUIPMENT OF CARS: If cars have more than one variety of equipment they should be reported for each. If cars are equipped so that fenders can be put on when run out of barn they should be counted as equipped with fenders.	Total number.
Equipped:	
With fenders.....	
With hand brakes.....	
With air brakes.....	
With other mechanical brakes (state kind).....	
With electric heaters.....	
With stoves or other heating systems (state kind).....	
With one motor....., two motors....., three motors....., four motors.....	
Lighted by electricity.....	
Lighted by oil, gas, etc.....	

* Length to be stated in miles and decimals of a mile carried to two places.

11. TRAFFIC AND MILEAGE: In computing car mileage the individual car should, as a rule, be considered the unit. Motor and one small trailer can be treated as a unit if this is the practice of the company. Train mileage should not be reported as such.	Number.
Fare passengers carried.....	
Transfer passengers carried.....	
Free passengers carried (not including badge passengers).....	
TOTAL PASSENGERS CARRIED.....	
Passenger-car mileage.....	
Express, freight, mail, and work car mileage, including mileage of steam or electric locomotives.....	
TOTAL CAR MILEAGE.....	
Passenger-car hours.....	
Express, freight, mail, and work car hours, including hours of steam or electric locomotives.....	
TOTAL CAR HOURS.....	

12. ACCIDENTS: The character or degree of injury should not be considered in answering this inquiry. All accidents of which the company has record should be reported.

	NUMBER.	
	Killed.	Injured.
Passengers.....		
Employees.....		
Other persons.....		
TOTAL.....		

13. POWER-PLANT EQUIPMENT.

GENERATING POWER PLANT.	500 H. P. or under.	Over 500 H. P. and under 1,000 H. P.	1,000 H. P. and under 2,000 H. P.	2,000 H. P. and under 5,000 H. P.	5,000 H. P. and over.
Steam engines, number.....					
Total capacity in horsepower.....					
Steam turbines, number.....					
Total capacity in horsepower.....					
Gas engines, number.....					
Total capacity in horsepower.....					
Water wheels, number.....					
Total capacity in horsepower.....					
Auxiliary engines for use within plant as accessories, etc..					
Number....., total capacity in horsepower.....					

14. SUBSTATION EQUIPMENT.

NOTE: The kilowatt capacity, voltage, and amperage reported should represent a single machine. If more than one machine of the same class, give separate information for each.	Number.	Total capacity in kilowatts of each machine.	Indicated voltage of each machine.	Indicated amperage of each machine.
Rotary converters, etc.....				
Transformers.....				
Storage battery, cells.....				
Miscellaneous (state kind).....				

ELECTRIC MOTORS USED IN PLANT OR SUBSTATION FOR MISCELLANEOUS WORK:

Direct current, number....., total capacity in horsepower.....	
Alternating current, number....., total capacity in horsepower.....	

15. ELECTRICAL GENERATORS: The kilowatt capacity, voltage, and amperage reported should represent a single machine. If more than one machine of the same class, give separate information for each.

	Number.	Total capacity in kilowatts of each machine.	Indicated voltage of each machine.	Indicated amperage of each machine.
DYNAMOS, DIRECT CURRENT:				
500 K. W. or under.....				
Over 500 K. W. and under 1,000 K. W.....				
1,000 K. W. and under 2,000 K. W.....				
2,000 K. W. and under 5,000 K. W.....				
5,000 K. W. and over.....				
DYNAMOS, ALTERNATING CURRENT:				
500 K. W. or under.....				
Over 500 K. W. and under 1,000 K. W.....				
1,000 K. W. and under 2,000 K. W.....				
2,000 K. W. and under 5,000 K. W.....				
5,000 K. W. and over.....				

13. ELECTRICAL GENERATORS: The kilowatt capacity, voltage, and amperage reported should represent a single machine. If more than one machine of the same class, give separate information for each.—Continued.

	Number.	Total capacity in kilowatts of each machine.	Indicated voltage of each machine.	Indicated amperage of each machine.
Transformers.....				
Storage battery, cells.....				
Boosters for outside feeders.....				
Auxiliary generators for use with-in plant.....				
Rotaries.....				

16. OUTPUT OF STATION: The output should be calculated from the voltage and amperage of the generators, or obtained from the actual watt or kilowatt readings of dynamo meters.

Kilowatt hours, average per day.....

Kilowatt hours, total for year.....

17. MISCELLANEOUS STATISTICS.

	Number.
Transfer points.....	
Power houses.....	
Car houses.....	
Lamps used in lighting offices, power houses, shops, car houses, ways, and pleasure resorts:	
Are lamps.....	
Incandescent lamps.....	
Other varieties (Nernst, vacuum, vapor, etc. [state kind]).....	
Miles of telephone line in use exclusively for operation of road.....	
Miles of subway or tunnels occupied by tracks (state which)*.....	
Miles of street occupied by underground conduits for mains and feeders.* (If mains and feeders are carried in the conduit of underground-trolley construction, note this fact).....	
Steam-railroad crossings protected (by flagman, alarm bell, elevated or depressed tracks, etc.).....	
Steam-railroad crossings unprotected.....	
Are mails carried for the Government? (Answer Yes or No.).....	
Does the company own or operate any parks or pleasure resorts?.....	
If so, give number.....; cost or investment, \$.....;	
If hired, the annual rental, \$.....	
Estimate of number of visitors annually.....	
General description of the resorts, or write same on last page.....	

* Length to be stated in miles and decimals of a mile carried to two places.

The following inquiries relating to financial operations conform to the system of accounting devised by the American Street and Interurban Railway Accountants' Association.

18. COST OF CONSTRUCTION AND EQUIPMENT: The answer must show the total cost of organization, engineering and superintendence, right of way, track and roadway construction, electric-line construction, real estate used in operation of road, buildings and fixtures used in operation of road, investment in real estate, power-plant equipment, shop tools and machinery, cars, electric equipment of cars, miscellaneous equipment, interest and discount, and miscellaneous.

Cost during the year..... \$.....

Cost to date..... \$.....

Is value of franchise included? (Answer Yes or No.).....

19. OPERATING EXPENSES.

MAINTENANCE:

Ways and structures—

1. Maintenance of track and roadway..... \$.....
2. Maintenance of electric, cable, etc., lines.....
3. Maintenance of buildings and fixtures.....

TOTAL..... \$.....

Equipment—

4. Maintenance of steam plant.....
5. Maintenance of electric, cable, etc., plant.....
6. Maintenance of cars.....
7. Maintenance of electric, cable, etc., equipment of cars.....
8. Maintenance of miscellaneous equipment.....
9. Miscellaneous shop expenses.....

TOTAL.....

TRANSPORTATION:

Operation of power plant—

10. Power-plant wages.....
11. Fuel for power.....
12. Water for power.....
13. Lubricants and waste for power plant.....
14. Miscellaneous supplies and expenses of power plant.....
15. Power purchased.....

TOTAL.....

Operation of cars—

16. Superintendence of transportation.....
17. Wages of conductors.....
18. Wages of motormen.....
19. Wages of other car-service employees.....
20. Wages of car-house employees.....
21. Car-service supplies.....
22. Miscellaneous car-service expenses.....
- 23a. Hired equipment.....
23. Cleaning and sanding track.....
24. Removal of snow and ice.....

TOTAL.....

GENERAL:

25. Salaries of general officers.....
26. Salaries of clerks.....
27. Printing and stationery.....
28. Miscellaneous office expenses.....
29. Store expenses.....
30. Stable expenses.....
31. Advertising and attractions.....
32. Miscellaneous general expenses.....
33. Damages.....
34. Legal expenses in connection with damages.....
35. Other legal expenses.....
36. Rent of land and buildings.....
37. Rent of tracks and terminals.....
38. Insurance.....

TOTAL.....

Wages, supplies, and expenses incident to electric service not included in any of the above items.....

GRAND TOTAL.....

* For roads that sell current for light or power.

STREET AND ELECTRIC RAILWAYS.

20. INCOME ACCOUNT: Give actual amounts carried on income-account statement of company. This may include income and expenses for the year, and therefore need not agree with a cash statement. If accounts do not show the income from each source enumerated, give a carefully estimated segregation. The total income should be the gross income of the company for the year.

INCOME.	
Passengers.....	\$.....
Chartered cars.....	
Freight.....	
Mail.....	
Express.....	
Sale of electric current for light or power, including sale of current to other public-service corporations.....	
Interest on bonds and dividends on stock of other electric railways.....	
Income from other permanent investments.....	
Miscellaneous (specify principal items).....	
TOTAL.....	

EXPENSES.	
Total operating expenses (from Inquiry 19).....	XXXXXX \$.....
Taxes paid or due for the year:	
Real and personal property.....	\$.....
Capital stock.....	
Earnings.....	
Miscellaneous (specify items).....	
TOTAL.....	
Interest paid or due for the year:	
Funded debt.....	
Real-estate mortgages.....	
Floating debt.....	
TOTAL.....	
Rent of leased lines and terminals.....	XXXXXX
Miscellaneous (specify principal items).....	XXXXXX
TOTAL.....	XXXXXX
Net income.....	\$.....
Net deficit.....	\$.....

21. BALANCE SHEET.

ASSETS.		LIABILITIES.	
Kind.	Amount.	Kind.	Amount.
Cost of construction, equipment, and real estate.....	\$.....	Capital stock.....	\$.....
Stocks and bonds of other electric-railway companies.....		Funded debt.....	
Other permanent investments (specify).....		Real-estate mortgages.....	
Cash on hand.....		Floating debt (loans and notes).....	
Bills and accounts receivable.....		Reserves.....	
Supplies.....		Bills and accounts payable.....	
Sundries (specify principal items).....		Interest due and accrued.....	
Profit and loss deficit.....		Dividends due.....	
TOTAL.....		Sundries (specify principal items).....	
		Profit and loss surplus.....	
		TOTAL.....	

22. CAPITAL STOCK, BONDS, DIVIDENDS, AND INTEREST: If the company is engaged in some other industry, and it is impossible to segregate the capitalization, report the entire capital and give an estimate of the proportion chargeable to the electric-light and street-railway interests.

	Number of shares or bonds.	Total par value.	DIVIDENDS DECLARED AND INTEREST PAID OR DUE FOR THE YEAR.	
			Rate.	Amount.
<hr/>				
AUTHORIZED CAPITALIZATION BY CHARTER:				
Common stock		\$.....	x x x x	x x x x x x
Preferred stock			x x x x	x x x x x x
Bonds			x x x x	x x x x x x
<hr/>				
CAPITAL STOCK AND BONDS OUTSTANDING:				
Common stock				\$.....
Preferred stock				
Bonds				

Estimated proportion of above capitalization chargeable to electric-light and street-railway interests

23. EMPLOYEES, SALARIES, AND WAGES: The salaries and wages reported here should also be included in the amounts reported for the different items under Inquiry 19, "Operating expenses." The average number employed during the year is the number that would be required at continuous employment for the twelve months. Account for all regular officers and employees whether engaged on maintenance, canvassing, collecting, operation, or otherwise. (Do not include employees engaged exclusively on additions or extensions.)

SALARIED EMPLOYEES:		Average number employed during the year.	Total amount paid in salaries and wages during the year.
Salaried officers of corporation.....			\$.....
Other officers (managers, superintendents, etc.).....			
Clerks and bookkeepers.....			
TOTAL.....			\$.....

WAGE-EARNERS (do not include salaried employees reported above):		Average number employed during the year.	Total amount paid in salaries and wages during the year.
Foremen.....			
Inspectors.....			
Conductors.....			
Motormen.....			
Starters.....			
Switchmen.....			
Road and track men.....			
Linemen.....			
Electricians (include only skilled electricians).....			
Car and motor repairers.....			
Engineers.....			
Dynamo and switchboard men.....			
Firemen.....			
Other mechanics.....			
Hostlers, stablemen, etc.....			
Watchmen (include building, track, and crossing watchmen).....			
All other employees.....			
TOTAL.....			

Questions for railways which operate separate electric-light and power plants. The following questions should be answered if there is a separate power plant or line construction and a complete separate report can not be prepared as provided for by instructions next preceding inquiry.

24. **NUMBER OF LAMPS:** Account for all lamps wired for service on last day of year covered by report, irrespective of ownership. If actual number is not known give careful estimate. (Do not include lamps used by company to light its own properties, which should be reported under Inquiry 17.)

CLASS.	Type of lamp.	Public. (Number.)	Commercial or other (private. (Number.))	Total. (Number.)
Are lamps:				
Direct current.....	Open.....			
	Inclosed.....			
Alternating current.....	Open.....			
	Inclosed.....			
All other (state kind).....	Open.....			
	Inclosed.....			
TOTAL.....	Open.....			
	Inclosed.....			
Incandescent lamps:				
Sixteen candlepower.....				
Thirty-two candlepower.....				
All other.....				
TOTAL.....				
Other varieties (Nernst, vacuum, vapor, etc. (state kind)).....				

25. **METERS AND MOTORS.**

Number.

Stationary motors served (do not include small fan motors).....

Total capacity in horsepower.....

Meters on consumption circuits:

Mechanical.....

All other (state kind).....

26. **INCOME:** The total income reported here should also be included under Inquiry 20. "Income account." If accounts do not show the income from each class of service enumerated, give a carefully estimated segregation. (The estimated value of current supplied municipality or other government free of charge, and the estimated value of current consumed by lamps and motors on the company's own properties should not be included.)

SOURCE.	Amount.
Lighting:	
Commercial or other private—	
Are lamps.....	\$.....
Incandescent lamps.....	
Other lamps.....	
Public, furnished municipality or other government for buildings and streets—	
Are lamps.....	
Incandescent lamps.....	
Other lamps.....	
Motor service, stationary (not including small fan motors).....	
Electric-railway service (exclusive of company's own cars).....	
Electric heating, cooking, welding, etc.....	
Sale of current to other electric companies.....	
Charging automobiles.....	
All other electric service (specify items).....	
Gross income from sale of supplies and fixtures.....	
Income from all other sources (specify items).....	
TOTAL.....	

Give estimated amount of income lost because of free service furnished municipality or other government..... \$.....

The following inquiries comprise a part of the annual investigation of consumption of forest products: It is desired to ascertain the number of poles and ties purchased during the entire year. The number reported here need not necessarily agree with the cost reported in Inquiry 19, "Operating expenses," which relates to the poles and ties used during the year.

27. **POLES PURCHASED DURING 1907.**

LENGTH, FEET.	CEDAR.		CHESTNUT.		JUNIPER.		OTHER SPECIES. (Specify.)	
	Num-ber.	Average cost per pole at point of purchase.	Num-ber.	Average cost per pole at point of purchase.	Num-ber.	Average cost per pole at point of purchase.	Num-ber.	Average cost per pole at point of purchase.
Under 20.....								
20 and over but under 25.....								
25 and over but under 30.....								
30 and over but under 35.....								
35 and over but under 40.....								
40 and over but under 45.....								
45 and over but under 50.....								
50 and over but under 55.....								
55 and over but under 60.....								
60 and over.....								

How many treated poles were purchased during 1907?.....

What preservative was used?.....

How many poles were treated during 1907?.....

What preservative was used?.....

28. **CROSS-TIES PURCHASED DURING 1907.**

KIND OF WOOD.	HEWED CROSS-TIES.		SAWED CROSS-TIES.	
	Num-ber.	Average cost per tie at point of purchase.	Num-ber.	Average cost per tie at point of purchase.
Oaks.....				
Southern pines.....				
Cedar.....				
Douglas fir.....				
Chestnut.....				
Cypress.....				
Western pine.....				
Tamarack.....				
Hemlock.....				
Redwood.....				
Lodgepole pine.....				
White pine.....				
All other.....				
Total.....				

How many ties were purchased for new track?.....

How many miles of track are now laid with treated ties?.....

How many treated ties were purchased during 1907?.....

What preservative was used?.....

How many ties were treated during 1907?.....

What preservative was used?.....

APPENDIX B.

INSTRUCTIONS TO SPECIAL AGENTS.

The schedule is prepared primarily for railways operated by electricity, as the greater number of street railways, including the most important, have adopted this form of motive power. All classes of street railways, whether operated in whole or in part by cable, animal, steam, or other motive power, and also inter-urban railways, must be reported on it. The data in regard to track, overhead electric-line construction, cars, equipment of cars, traffic and mileage, accidents, power-plant equipment, substation equipment, electrical generators, output of station, miscellaneous statistics, and capitalization, will probably be published for each individual company or system. The agent should be particular, therefore, to see that the name and location of the company and these data are exact and correct in every detail.

Reports to state offices.—In a number of states the electric railways make reports to state railroad commissioners or other state officials. In all cases where such reports are of assistance in the preparation of the census schedule, copies of them have been secured and will be given the different agents.

Combined reports for two or more systems.—In a number of instances independent street-railway companies have recently been combined under one ownership. In such cases one report may be made for the operations of the entire system, provided the roads which were formerly operated as independent lines are located in the same city or immediate vicinity, but if the system of accounting will permit of the preparation of separate schedules, a separate report should be secured for each of the constituent companies. In preparing separate reports for subsidiary companies the name and address of the controlling company must be given in answer to inquiry 4. (See also instructions for "separate supplementary reports for nonoperating lessor or leased roads," p. 558.)

Combined reports for railways and light and power plants.—A number of street-railway companies generate electricity for sale to other roads, or for light, power, or other purposes. In such cases either a combined report or separate reports should be prepared, as provided for by the instructions in the schedule. Separate reports should not be secured unless they can be made complete, with no cross references. If this can not be done, a combined report should be prepared on the railway schedule.

Of the first 6 inquiries special attention is called to inquiry 5. The answer to this inquiry must show how the two industries, when carried on by the same company, have been reported.

INQUIRY 7.—TRACK.

The track reported in answer to all three sections of this inquiry must be given in single-track miles and decimals of a mile carried to two places. The total miles reported for answer to the first and second sections of the inquiry should agree, and each must cover the total track. "Single track" means one set of rails in any thoroughfare. "Second track" means another pair of rails running alongside the first, so that cars can pass each other in opposite directions. Even in some of the largest cities there will be but one track in one street, the return route running parallel on another street near by. It is desired to secure these details itemized, so that when the second track, and the length of sidings and turn-outs, is

added to the first-main track there will appear the total mileage of track owned and operated by each road. At the same time the return will then exhibit the extent to which single tracks and double tracks occupy the streets.

Be careful not to report as "operated under trackage rights" any portion of the track operated under a lease and included in the column "Leased." The ownership (name and address of company) of leased track should be noted on the margin of the schedule.

The statistics for miles of track must be shown by states; therefore when a company operates in more than one state the entire length of the road, including leased lines, must be segregated so as to show the number of single-track miles in each state.

The third section of the inquiry covers only a portion of the track, as indicated by the following questions and instructions:

Total track operated on private right of way owned by railway companies.—Give the length in single-track miles of all tracks laid on ground owned by railway companies.

Total track operated on private right of way, not owned by railway companies.—Give length in single-track miles of all tracks laid on ground owned by individuals, firms, or corporations, other than railway companies. This must not include tracks laid on streets or public thoroughfares.

Total tracks operated within city or municipal limits.—The object of this inquiry is to ascertain the miles of track within urban districts as compared with rural districts. The city or municipal limits should be construed to mean any city, town, or village, whether incorporated or not, which is not rural in character.

Constructed and opened for operation during year covered by this report.—Report the number of single-track miles constructed and opened for operation during the year covered by the report.

Weight and style of rails.—Give the maximum and minimum weight per yard of the steel rails in use at the time of making the report. A girder rail weighs from 38 to 135 pounds to the yard; T rails from 15 to 91 pounds per yard. These weights are only general indications and should be used only by the agent to detect wide variations, for which explanation should be made. It is likely that many street-railway systems will have more than one weight of rail, the heaviest being used in cities, the lightest in the outskirts or where supported on ties and sleepers. If possible, the style of rail should be noted, as indicated in the schedule. The agent may be informed of the existence of some iron rail, but this should be disregarded, as such rail has virtually gone out of manufacture and use.

INQUIRY 8.—OVERHEAD ELECTRIC-LINE CONSTRUCTION.

The answer to the inquiry must show the length of construction, whatever such construction may be, "span wire," "side bracket," or "center pole;" also the length of construction with "steel, iron, or concrete poles," and "wooden poles." This length would be the same whether single or multiple tracks were used under such construction. For example: If 5 miles of double track under span-wire construction were reported, the answer to this inquiry would not be 10 miles, but 5 miles. If 5 miles of single track having 1 mile of siding or turn-outs were reported, the answer would probably not be 6 miles, but 5 miles, as the same construction which covers the single track would in most cases cover the sidings also.

The construction reported as "overhead trolley" must include both single and double overhead trolleys. The miles reported for steel, iron, or concrete, and for wooden-pole construction will, when combined, be the same as the total given for overhead trolley, except such portion as is carried by span wire supported from buildings or structures other than poles. The latter condition should be noted and explained.

Considering all systems reported at the census of 1902 there were on the average about 52 poles to each mile of line. A wide departure from this average should be explained. When poles are required for both sides of the track under span-wire construction, the fact should be stated, the total number per mile given, and divided by 2 so the report will show actual conditions.

INQUIRIES 9 AND 10.—CARS AND EQUIPMENT OF CARS.

The answers to inquiry 9 must account for all cars operated, ready for operation, or being repaired. Some cars may serve for more purposes than one, but they must not be counted twice. The total must be the actual number. Passenger cars used also for express, freight, or mail business must be reported as "combination cars (passenger, with express, freight, or mail)." The cars reported as "express, freight, and mail cars" must be devoted solely and specifically to one or more of these several uses. Snowplows and sweepers are often a composite vehicle, and in such cases must be counted only once, under either head. Sprinklers should be reported under "snowplows" or "sweepers," and so designated. "Motor cars" should be reported only for electric or cable systems. Grip cars should be reported as motor cars (with explanation). All other cars, including horse cars, not equipped with electric motive power, should be reported as "trailers."

Some cars may not have the equipment of the character specified in inquiry 10 and therefore should not be included in the answer to the inquiry, while others may have more than one variety of equipment and be reported more than once. The total number reported for the different classes of equipment may not agree with the total of inquiry 9.

The fender is usually a removable piece of apparatus, and where all the cars of the road are so equipped that fenders can be used on them when run out of the car barn for service, they should all be enumerated as equipped with fenders. If a car has no fender attachments, it should not be counted here. Brakes are a permanent fixture on any car, and in the majority of instances will be the ordinary hand brake. Air brakes are set by air-compression mechanism and comprise those in which electric motors under the car drive the air pumps, or the compressed air is obtained from tanks.

INQUIRY 11.—TRAFFIC AND MILEAGE.

Transfer passengers carried.—Many street railways voluntarily, or when required by law, give free transfers to passengers paying one fare and desiring to ride over more than one line. These transfers are generally issued in the shape of tickets at junction transfer points, or sometimes the passenger steps from one car to the other, without such tickets, under the eye of the transfer agent; and in this manner a continuous ride can be made over more than one road for the one fare. Careful count or estimate of transfers is made by all the roads granting them.

Free passengers carried (not including badge passengers).—All free passengers carried of whom record was kept should be reported here. This includes employees of the company and local government, and other persons, riding on passes; but would not include employees of the company, policemen, and letter carriers in uniform, and known as "badge passengers."

Car mileage.—It is an ordinary practice for street railways to keep an account of this mileage. Where it is not known the car mileage can be estimated fairly well by ascertaining the number of round trips daily on each line or branch of the system and multiplying this by the length of the respective trips. The daily average should be multiplied by the number of days the road was in opera-

tion during the year to obtain the total for the period covered by the report. The number of miles that cars run per day depends upon the location of the road, roads in rural districts making faster time than those in cities. The earnings per car mile should, as a rule, be between 10 and 40 cents.

The use of "trailers" is a source of confusion in computing the car mileage. As a rule, the individual car should be considered as the unit in computing the car mileage, but when the trailers are small and it is the practice of the company to consider the motor car and the trailer as one car in making the computation, the company's figures should be accepted. Train mileage based on three or more cars should not be accepted for car mileage.

The ratio of the number of fare passengers to the number of car miles run has a very important bearing upon the prosperity of the street-railway business. For the country as a whole the average number of fare passengers per car mile in 1902 was 4.26; the cars were run, therefore, on an average, nearly one-fourth of a mile for each fare collected. An extreme variation from this average should be questioned and explained.

In many cases the car mileage of express, freight, mail, and work car service will be a matter of estimate and should include mileage of steam or electric locomotives.

The other inquiry, "car hours," is not obligatory, but is a new method of accounting for car operation and is already employed by some roads. Such roads, however, are large and the system of accounts is likely also to include the older and more familiar "car mile." At the census of 1902 the roads which reported car hours indicated an average of 33 fare passengers per passenger-car hour.

INQUIRY 12.—ACCIDENTS.

In the return of killed or injured, "other persons" is meant to refer to foot passengers or persons riding in vehicles other than street cars that are in collision with the cars. The character or degree of the injury, whether severe or slight, should not be considered in making answer to this inquiry. All accidents of which the company has record should be reported.

INQUIRIES 13, 14, AND 15.—POWER-PLANT EQUIPMENT, SUBSTATION EQUIPMENT, AND ELECTRICAL GENERATORS.

The capacity of the engines and water wheels and of the dynamos is closely related. The engines and water wheels, as a rule, have an excess capacity over that of the dynamos. "Auxiliary engines" will sometimes be found in small railway plants, but in the larger plants electric motors are in common use to drive pumps, etc., and the superintendent or manager can readily enumerate them.

Electric railways are, as a rule, operated by direct-current motors, and current to these motors is furnished either by direct-current generators (i. e., dynamos) or by converters which take alternating current from large alternating polyphase generators and convert it into direct current for consumption at the cars. There will be no difficulty in ascertaining the facts as to these different classes of apparatus, as only the larger systems employ alternating current for widespread distribution, and then usually in connection with substations, to which such current is delivered to be passed through transformers and converters, so that it may be adapted for use by the direct-current motors. Storage batteries are used, either in the main power plants or in the substations, to help maintain a steady supply of current at the right pressure, and "boosters" are dynamos assisting to the same end. The substation is particularly a feature of long-distance rural electric-railway work, but in every instance such roads have competent engineers who can give the substation equipment should it not be in possession of the management.

The feature of substation equipment is that it does not generate current, but receives it, manipulates it, stores it, and lowers the pressure or changes the form for local consumption. All the generating plants will usually be found in the generating stations, but sometimes substation apparatus will be found under the same roof as the main generating-plant apparatus.

As a rule, dynamos for road work vary from 480 to 600 volts each, there being very few over 800 volts. The voltage of machines for lighting purposes varies greatly. In all cases the kilowatt capacity, voltage, and amperage reported must represent a single machine. If there is more than one machine of the same class, give separate information for each.

INQUIRY 16.—OUTPUT OF STATION.

This is an inquiry in regard to which some roads may have no data, although with many of them it is a matter of careful scientific accounting. In every case the volts multiplied by the amperes will give the number of watts. A kilowatt is 1,000 watts. There are 746 watts in the old familiar horsepower, so that a kilowatt is roughly $\frac{1}{3}$ horsepower. Watt hours are the product of watts multiplied by the number of hours during which the current is in use. Thus a power house with a dynamo delivering current to the line of 1,000 amperes at 550 volts pressure is generating 550,000 watts, or 550 kilowatts. If these 550,000 watts are furnished, on an average, twenty hours daily, we get 11,000,000 watt hours or 11,000 kilowatt hours. The total for the year can be arrived at from the daily total.

The output must be obtained from the load voltage and amperage, or from the actual watt or kilowatt reading of dynamo meters. The kilowatt hours may be tested by the car mileage. One car mile requires from eight-tenths of one to three and one-half kilowatt hours. Long and heavy cars in some instances require more.

INQUIRY 17.—MISCELLANEOUS STATISTICS.

Most of the questions under this inquiry are self-explanatory. Special attention is, however, directed to the following:

Miles of telephone lines in use exclusively for operation of road.—Many street railways have their own regular car-dispatching system, which is aided and supplemented by a telephone service belonging to the road, the wires being strung along the line. Other roads that may not have dispatchers place telephone boxes on their poles to enable communication between any conductor and headquarters. All of this service is independent of the local telephone system used by the public and furnished from a local exchange; and the inquiry does not include the instruments or lines that the street-railway company may hire from the telephone company as a subscriber.

Miles of subway or tunnels occupied by tracks.—This question must not be confused with the question of "subway and tunnels" of inquiry 7, which calls for the single-track mileage. The question here calls for the miles of subway or tunnel construction and not the single-track mileage.

Steam-railroad crossings protected, etc.—Warning signs or orders to car motormen to stop and run forward at track crossings are not to be regarded as a protection of railroad crossings in the sense of this inquiry.

Parks or pleasure resorts.—These are a feature of modern street-railway business and often a large source of income. They have frequently been created by the companies themselves on their lines, and the data should be readily obtainable in every case. The agent must not, however, include in the return parks and pleasure grounds belonging to the community or other interests and entered by street-railway systems; but if the company pays for the privilege of touching at these points, a memorandum should be made of that fact, and the number of passengers thus specifically delivered within such pleasure resorts should be noted, if possible, as distinguished from traffic on lines terminating outside public parks or running around them.

FINANCIAL OPERATIONS.

To facilitate the answers to the inquiries concerning financial operations, the office has adopted the system of accounting devised by the American Street and Interurban Railway Accountants' Association. It is presumed that all street-railway companies are familiar with this system of accounting, but the

following instructions in regard to the items to be included in the answer to each inquiry are given to assist in their compilation:

In the following classification, "*Labor*" should be understood to mean, not only the manual work of laborers, but also superintendence, supervision, clerical work, engineering, and inspection, so far as they are chargeable to the account referred to.

"*Material*" should be understood to mean, not only finished or unfinished products, appliances, or parts, but such smaller articles as are usually termed "*Supplies*."

"*Tools*" should be understood to mean hand tools of mechanics and other tools, used in the work chargeable to the account referred to.

"*Expenses*" should be understood to mean all expenses chargeable to the account referred to that are not labor, material, or tools.

The cost of replacement, renewal, or repair of property destroyed or injured by fire, worn-out, or otherwise unfitted for use, should be charged to the appropriate maintenance account, which should be credited with the amount received for insurance or realized from the sale of property so unfitted for use. But if the property substituted is of greater value than the original property, the excess should be charged to the capital or construction account to which the original property was charged; if of less value, the difference between the value of the property as repaired, renewed, or replaced, and its original cost or value should be credited to the capital or construction account to which the first cost was charged. So proceeds from the sale of scrap material should be credited to the account to which the cost of replacement of that material is charged, or, if not replaced, to the original cost account.

The cost of experiments should be charged in operating expenses to the account most affected.

INQUIRY 18.—COST OF CONSTRUCTION AND EQUIPMENT.

The schedule used at the census of 1902 required a separate amount for each item of this account. The majority of the companies could not make the segregation and therefore only the totals are required at this census. In order to obtain an amount which will be comparable with the totals for 1902 care must be taken to include the cost of each of the following items:

Organization.—All expenses incurred in effecting organization, including legal expenses.

Engineering and superintendence.—All expenditures for services of engineers, draftsmen, and superintendents employed on preliminary and construction work, and all expenses incident to the work.

Right of way.—All expenditures in connection with securing or paying for right of way, including cost of real estate for right of way.

Track and roadway construction.—All expenditures for track and roadway construction, including labor, material, tools, freight, hauling, distribution of material, and all other expenses incident to the work; cost of grading, excavating, track laying, ties, yokes, slot rails, manhole frames and covers, rails, rail fastenings, welded joints, special work (such as crossings, crossovers, curves, frogs, guard rails, run-offs, switches, switch mates, turn-outs), ballasting, paving, fences (right of way), bridges and culverts, trestles, subways, and tunnels.

The cost of tracks in yards, terminals, car houses, or other buildings should be charged to this account.

Electric-line construction.—All expenditures for overhead, underground, third-rail, or surface-contact electric-line construction, including labor, material, tools, freight, hauling, distribution of material, and all other expenses incident to the work; cost of punching and drilling rails for track wiring, rail bonds, poles (iron, concrete, and wood), labor and material for setting and painting poles; feed wire, guard wire, span wire, strain wire, supplementary wire, trolley wire, ground feeders, underground feeders, pole fixtures, hangers or suspensions, insulators (overhead), lighting arresters and appliances, signals and signaling apparatus,

overhead crossings and switches, ground terminals, and all labor in connection with putting same in position; conduits and conduit appliances for underground-trolley construction, including conductors, insulators, sewer connections, sewer traps, and underground feeders; third rails, and insulators for third-rail construction; surface-contact appliances for surface-contact roads, including magnets, contact boxes, manhole frames and covers.

Real estate used in operation of road.—All expenditures for real estate used in operation of road.

Buildings and fixtures used in operation of road.—All expenditures for buildings and fixtures used in operation of road, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work. The term "buildings and fixtures" includes power houses, car houses, shops, office buildings (when owned by the company), waiting rooms, sheds, out-houses, coal bins, sand houses, stables, storehouses, switch tenders' houses, fences (except park and right of way), docks, wharves, and all other buildings and inclosures, and their stationary fixtures, including pipes for gas, water, sewage, and drainage, apparatus for heating, lighting, and ventilating, sidewalks, and paving in streets in front of and adjacent to the company's buildings (except in tracks), and inspection and repair pits in car houses, shops, or other buildings.

Investment real estate.—All expenditures for land and buildings not used in operation of road.

Power-plant equipment.—All expenditures for steam and electric equipment of power plant, including foundations and installation. The equipment of substations (if used) should be charged to this account. All expenditures for water-power machinery (if used) should be charged to this account.

Shop tools and machinery.—All expenditures for shop tools and machinery for general repair shops, car houses, etc., including foundations and installation.

Cars.—All expenditures for passenger, baggage, express, freight, mail, and other cars from the operations of which revenue is derived. The term "cars" includes car bodies and trucks, and all fixtures or appliances inside of or attached to the car body or truck (except the electric equipment of the car).

Electric equipment of cars.—All expenditures for electric equipment and wiring of all cars, whether revenue cars or work cars, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

Miscellaneous equipment.—All expenditures for water cars, sprinkling cars, sand cars, salt cars, supply cars, and other work cars; snowplows, sweepers, scrapers, and miscellaneous snow equipment; horses, harness, wagons, and vehicles; tools and appliances necessary in the use of work cars or snow equipment.

Interest and discount.—All interest paid or received in connection with funds for construction, and all discounts or premiums resulting from the negotiation of securities for construction, should be charged or credited to this account.

Miscellaneous.—All expenditures for printing and stationery, office supplies and expenses, damage claims, wages of clerks, and all other expenses incident to construction not otherwise provided for.

If a combined report for railway and light and power plant is prepared as provided for by the instructions in the schedule, the cost of the electric light and power plant should be included in this inquiry.

INQUIRY 19.—OPERATING EXPENSES.

1. *Maintenance of track and roadway.*—All expenditures for repairs and renewals of track and roadway, of culverts and subways, of tracks in yards, terminals, car houses or other buildings, including labor, material, tools, fuel, light, water, ice, freight, hauling, and distribution of material, and all other expenses incident to the work.

The cost of taking up track, whether new track is laid in its place or not, should be charged to this account.

The cost of punching and drilling rails for repairs or renewals of track wiring, and of removing and relaying pavement, ballast,

etc., when necessary for repairs or renewals of the line, should be charged to account No. 2.

The cost of repairs and renewals of harness and wagons used in connection with this work should be charged to account No. 8.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

Following is a list of some of the items chargeable to this account:

Ballast.	Manhole covers, for underground trolley.
Bolts.	Manhole frames, for underground trolley.
Braces, rail.	Molds, for welded joints.
Bricks.	Nails.
Bridges.	Nuts.
Cement.	Nut locks.
Chairs, for rails.	Paving materials.
Clampets, for ballast.	Pivots, for welded joints.
Clamps, for welded joints.	Pipes, drain.
Coke, for welding joints.	Rails.
Crossings.	Run-offs.
Crossovers.	Sand.
Culverts.	Screws.
Curves.	Slats, for underground trolley.
Ditches.	Spikes.
Fences, right of way.	Steel.
Fill plates.	Stone.
Freight.	Subways.
Frogs.	Switches.
Fuel.	Switch mates.
Gravel.	Ties.
Guard rails.	Tie plates.
Harding.	Tie-rods.
Ice, for ice water.	Tools.
Iron.	Trackies.
Joints, welded.	Tunnels.
Joints, not welded.	Turnouts.
Labor.	Washers.
Light lanterns and fixtures, oil, lamp-wick, torches, candles, incandescent lamps and fixtures, arc lights and fixtures, globes, and carbons.	Water.
Lumber.	Yokes, for underground trolley.

2. *Maintenance of electric, cable, etc., lines.*—All expenditures for repairs and renewals of overhead, underground, third-rail, or surface-contact electric lines, and cable line, including labor, material, and tools employed or used in taking up, resetting, and painting or repainting poles, taking down trolley, feed, guard, and supplementary wires, and substituting new, repairing and renewing conduits for wires, repairing and renewing bond wires, punching and drilling rails for track wiring, removing and relaying pavement, ballast, etc., when necessary for repairs or renewals of the line, freight, hauling, and distribution of material, fuel, light, water, and ice, and all other expenses incident to the work.

The cost of repairs and renewals of the line in yards, terminals, car houses, or other buildings should be charged to this account.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness and wagons used in connection with this work should be charged to account No. 8.

Following is a list of some of the items chargeable to this account:

Bolts.	Manhole frames, for surface-contact roads.
Boxes, for lightning arresters.	Nuts.
Cement.	Painting material, for poles.
Charcoal.	Pins, iron, for cross-arms.
Clamps, for poles.	Pins, wood, for cross-arms.
Conductors, for underground trolley.	Poles, iron.
Conduits.	Poles, wood.
Contacts, for surface-contact roads.	Pole-tops, for iron poles.
Contact boxes, for surface-contact roads.	Rail bonds.
Cord.	Sand.
Cross-arms, iron.	Screws.
Cross-arms, wood.	Sewer connections, for underground trolley.
Crossings.	Signals and signaling apparatus.
Feeders, ground.	Solder.
Feeders, overhead.	Soldering salts.
Feeders, underground.	Steel.
Freight.	Stone.
Fuel.	Suspensions.
Gasoline.	Switches.
Hangers.	Tape, insulating.
Hauling.	Terminals.
Ice, for ice water.	Third rails.
Insulators, overhead.	Tools.
Insulators, underground.	Washers.
Insulators, for third rail.	Water.
Iron.	Wire, feed.
Labor.	Wire, guard.
Light lanterns and fixtures, oil, lamp-wick, torches, candles, incandescent lamps and fixtures, arc lights and fixtures, globes, and carbons.	Wire, span.
Lightning arresters and parts.	Wire, strain.
Magnets for surface-contact roads.	Wire, supplementary.
Manhole covers, for surface-contact roads.	Wire, trolley.

3. *Maintenance of buildings and fixtures.*—All expenditures for repairs and renewals of buildings and fixtures used in the operation of the road, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

The term "buildings and fixtures" includes power houses, car houses, shops, office buildings (when owned by the company), waiting rooms, sheds, outhouses, coal bins, sand houses, stables, storehouses, switch tenders' houses, fences (except park and right-of-way fences), docks, wharves, and all other buildings and inclosures, and their stationary fixtures, including pipes for gas, water, sewage, and drainage, apparatus for heating, lighting, and ventilating, sidewalks and pavements in front of and adjacent to the company's buildings (except in tracks), and inspection and repair pits in car houses, shops, or other buildings.

The cost of repairs and renewals of tracks in yards, terminals, car houses, or other buildings should be charged to account No. 1.

The cost of repairs and renewals of the line in yards, terminals, car houses, or other buildings should be charged to account No. 2.

Following is a list of some of the items chargeable to this account:

Awnings.	Pipes, gas.
Bolts.	Pipes, sewer.
Bolt ends.	Pipes, water.
Brics.	Pits in car houses and shops.
Builders' hardware.	Plaster.
Building material.	Plumbing.
Building permits.	Rivets.
Cement.	Roofing material.
Cisterns.	Sand.
Drains.	Sash cord.
Excavations.	Sash weights.
Fences (except park and right of way).	Scales, platform.
Foundations.	Screws.
Freight.	Sewering.
Grading.	Shelving and other fixtures.
Hauling.	Shingles.
Heating apparatus and fixtures.	Sidewalks.
Meams.	Slate.
Iron.	Spikes.
Labor.	Steel.
Laths.	Stone.
Lighting apparatus and fixtures.	Tile.
Lime.	Tools.
Lumber.	Turn-buckles.
Nails.	Ventilating apparatus and fixtures.
Nuts.	Washers.
Painting materials (oil, turpentine, varnish, lead, and painters' supplies).	Water.
Paving in streets (except in connection with trucks).	Water connections.
Pipes, drain.	Water meters.
	Wells.
	Wire.

4. *Maintenance of steam plant.*—All expenditures for labor, material, tools, freight, hauling of material, and all other expenses incident to repairs and renewals of steam plant or water-power plant, including engines and engine parts, appliances and fixtures, belts, belt tighteners and fixtures, receivers, lubricators, and oiling devices; shafting, clutches, cranes, hoists, and other engine-room appliances; boilers, boiler fittings and appliances; furnaces, economizers, stacks, mechanical-draft machinery, pumps, feed-water heaters, purifiers, tanks, condensers, coal and ash conveying machinery, mechanical stokers, and other boiler-room appliances; piping and steam fitting, including valves, separators, water and sewer connections, and water meters.

Following is a list of some of the items chargeable to this account:

Ash-conveying machinery.	Hoists.
Belts.	Injectors.
Belt fixtures.	Iron.
Belt tighteners.	Labor.
Boilers.	Lubricators.
Boiler appliances.	Oiling devices.
Boiler fittings.	Piping.
Bolts.	Pipe covering.
Cement.	Pipe fittings.
Clutches.	Pulleys.
Coal-conveying machinery.	Pumps.
Condensers.	Purifiers.
Cranes.	Receivers.
Draft machinery.	Screws.
Economizers.	Separators.
Engines.	Sewer connections.
Engine appliances.	Shafting.
Engine fixtures.	Stacks.
Engine parts.	Steam fittings.
Fire brick.	Steel.
Fire clay.	Stokers, mechanical.
Furnaces.	Tanks.
Grate bars.	Tools.
Hauling.	Water connections.
Heaters, feed-water.	Water meters.
	Water-power machinery.

5. *Maintenance of electric, cable, etc., plant.*—All expenditures for labor, material, tools, freight, hauling of material, and all other expenses incident to repairs and renewals of plant, including generators and generator parts, switchboards, cables, and feeder terminals and wiring in connection with same, storage batteries, transformers, boosters, rheostats, circuit breakers, ammeters, and other electric equipment.

Commutator brushes for generators should be charged to account No. 14.

Following is a list of some of the items chargeable to this account:

Ammeters.	Labor.
Boosters.	Lightning arresters and parts.
Cables.	Rheostats.
Circuit breakers.	Storage batteries.
Feeder terminals.	Switchboards.
Freight.	Switches.
Generators.	Tools.
Generator parts.	Transformers.
Hauling.	

6. *Maintenance of cars.*—All expenditures for repairs and renewals of passenger, baggage, express, freight, mail, and other cars from the operation of which revenue is derived, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

The term "cars" includes car bodies and trucks and all fixtures or appliances inside of or attached to the car body or truck, except the electric, cable, etc., equipment of the car.

The cost of cars purchased to keep good the original number of cars should be charged to this account.

Bell and register cord, trolley rope, incandescent lamps, commutator brushes, and other supplies for cars should be charged to account No. 21.

Following is a list of some of the items chargeable to this account:

Axles.	Labor.
Bells.	Life guards.
Bell-cord fixtures.	Lumber.
Bolts.	Mirrors.
Brakes (hand or power).	Nails.
Brake appliances (hand or power).	Nuts.
Brake shoes.	Oil boxes.
Brasses.	Painting material.
Brass fixtures.	Pedestals.
Brass trimmings.	Pilots.
Bumpers.	Sand boxes, attached to cars.
Canvas.	Screws.
Cotters.	Seats.
Curtains.	Seat covering.
Curtain fixtures.	Seat fixtures.
Dashes and parts.	Signs.
Drawbars.	Sign fixtures.
Electric heaters.	Snow scrapers, attached to cars.
Electroliners.	Springs.
Fare registers.	Steel.
Fenders and parts.	Steps.
Flue mats.	Stoves.
Freight.	Stove fixtures.
Gates.	Tools.
Glass.	Trucks.
Gongs.	Truck frames and parts.
Grab handles.	Washers.
Hauling.	Wheels.
Headlights and parts.	Woodwork.
Iron.	

7. *Maintenance of electric, cable, etc., equipment of cars.*—All expenditures for repairs and renewals of the electric, cable, etc., equipment and wiring of cars, whether revenue cars or work cars, including labor, material, tools, freight, hauling of material, and other expenses incident to the work.

Following is a list of some of the items chargeable to this account:

Armatures and parts.	Light circuits.
Bearings.	Lightning arresters and parts.
Bolts.	Motor frames.
Brasses, armature, axle, gear-case.	Nuts.
Brush holders and parts.	Pistons.
Canvas.	Plows, for underground-trolley cars.
Circuits for heat, light, power.	Power circuits.
Circuit breakers, automatic.	Rheostats.
Commutators and parts.	Screws.
Contact shoes for surface-contact cars.	Shafts.
Contact shoes for third-rail cars.	Springs.
Controllers and parts.	Steel.
Cotters.	Storage batteries, for storage-battery cars.
Cut-out boxes and parts.	Tape.
Fields and parts.	Terminals.
Frames, for motors.	Tools.
Freight.	Trolley bases.
Gears.	Trolley forks.
Gear cases and parts.	Trolley poles.
Hauling.	Trolley wheels and parts.
Heat circuits.	Washers.
Insulating material.	Wiring.
Iron.	
Labor.	

The cost of shifting equipments from summer to winter cars, or vice versa, should be charged to this account.

The cost of equipments purchased to keep good the original number of equipments should be charged to this account.

The cost of commutator brushes, incandescent lamps, oil, and other supplies for the equipment of cars should be charged to account No. 21.

8. *Maintenance of miscellaneous equipment.*—All expenditures for repairs and renewals of water cars, sprinkling cars, sand cars, salt cars, supply cars, other work cars, snowplows, sweepers, scrapers, miscellaneous snow equipment, wagons, and all other vehicles not operated for the purpose of revenue, including labor, material, tools, freight, hauling of material, and all other expenses incident to the work.

Replacing horses lost by death or worn-out in the service, depreciation in value of horses, and repairs and renewals of all harness and vehicles should be charged to this account.

Repairs and renewals of the electric, cable, etc., equipment of all work cars, snowplows, sweepers, etc., should be charged to account No. 7.

Following is a list of some of the items chargeable to this account:

Artes.	Life guards.
Bolts.	Lumber.
Brakes (hand or power).	Nails.
Brake appliances (hand or power).	Nuts.
Brake shoes.	Oil boxes.
Brasses.	Painting material.
Brass fixtures.	Pedestals.
Bumpers.	Pilots.
Canvas.	Rattan, for sweepers.
Cotters.	Sand boxes, attached to work cars.
Dashboards and parts.	Screws.
Drawbars.	Snow scrapers, attached to work cars.
Electroliers.	Springs.
Fenders and parts.	Steel.
Freight.	Tools.
Glass.	Trucks.
Gongs.	Truck frames and parts.
Grab handles.	Washers.
Hauling.	Wheels.
Headlights and parts.	Woodwork.
Iron.	
Labor.	

9. *Miscellaneous shop expenses.*—All expenditures for repairs and renewals of shop tools, machinery, and appliances, such as engines, boilers, shafting, motors, etc., used in general repair work, including labor, tools, coal, coke, lubricants, waste, and other material, freight, hauling of material, fuel, light, water, and ice, wages of master mechanic, shop foreman, engineers, firemen, and other employees engaged in operating shop engine, and all other expenses incident to the general repair shops.

Hand tools of mechanics or laborers used exclusively in connection with work chargeable to accounts Nos. 1 to 8, 14, 21, and 22 should not be charged to this account, but to the account benefited by their use.

Following is a list of some of the items chargeable to this account:

Bolts and bolt fixtures.	Light (lanterns and fixtures, oil, lamp-wick torches, candles, incandescent lamps, arc-light globes and carbons).
Boilers and boiler fittings.	Lubricants.
Bolts.	Lumber.
Brooms.	Motors and parts (for shop use only).
Charcoal.	Nails.
Clutches.	Nuts.
Coal.	Piping.
Coke.	Pipe covering.
Cotters.	Pipe fittings.
Cranes.	Pulleys.
Draft machinery.	Pumps.
Engines and parts.	Set-screws.
Engine appliances and fixtures.	Shafting.
Fire brick.	Stacks.
Fire clay.	Steam fittings.
Forges.	Steel.
Freight.	Tools, machine.
Fuel.	Tools, hand.
Furnaces and parts.	Washers.
Hauling.	Waste.
Heaters, feed-water.	Water.
Holists.	Welding compounds.
Ice, for ice water.	
Iron.	
Labor.	

10. *Power-plant wages.*—All expenditures for labor in the power plant, except labor employed in making repairs or renewals.

This includes the wages of the following employees:

Boiler cleaners.	Oilers.
Chief engineer.	Other labor (boiler room).
Coal passers.	Other labor (engine room).
Engineers.	Switchboard tenders.
Firemen.	Water tenders.
Generator tenders.	

11. *Fuel for power.*—All expenditures for coal, oil, or gas used as fuel, or other fuel used at power plant, including freight and hauling.

12. *Water for power.*—All expenditures for water used to produce steam or to operate a water-power plant.

13. *Lubricants and waste for power plant.*—All expenditures for lubrication of power plant, including oil, grease, waste, rags, etc.

14. *Miscellaneous supplies and expenses of power plant.*—All expenditures for operation of power plant not otherwise provided for.

Following is a list of some of the items chargeable to this account:

Boiler compound.	Matches.
Boiler inspection.	Mops.
Brooms.	Oil cans.
Brushes, fine.	Packing.
Brushes, for generators.	Polish.
Brushes, for scrubbing.	Sandpaper.
Buckets.	Soap.
Chamois skins.	Sponges.
Dusters.	Sprinkling cans.
Emery cloth.	Tools.
Fire buckets.	Water (except water charged in account No. 12).
Fire extinguishers.	Water-gauge glasses.
Garnet paper.	Waste cans.
Hose.	
Ice, for ice water.	
Light (lanterns and fixtures, oil, lamp-wick torches, candles, incandescent lamps, arc-light globes and carbons).	

15. *Power purchased.*—All expenditures for power purchased from other companies or power plants.

16. *Superintendence of transportation.*—Wages of division superintendents, their assistants and aids, road officers, inspectors, and others employed in superintending transportation.

17. *Wages of conductors.*—Those engaged in operating revenue cars.

18. *Wages of motormen.*—Those engaged in operating revenue cars.

19. *Wages of other car-service employees.*—Wages of starters, transfer agents, switch tenders, trolley men, trail-car couplers, and other car-service employees.

20. *Wages of car-house employees.*—Wages of car-house foremen, watchmen, car placers, car shifters, car and motor inspectors, car cleaners, lamp and headlight tenders, car oilers, car-stove firemen, trolley oilers, and other car-house employees not engaged in making repairs or renewals.

The cost of shifting cars for the purpose of repairs or renewals should be charged to account No. 6 or 7.

21. *Car-service supplies.*—All expenditures for lubricants and waste for cars and equipment of cars, incandescent lamps, oil and other supplies for lighting cars, water and other supplies for cleaning cars, fuel for heating cars, bell and register cord, trolley rope, commutator brushes, tools, and other material and supplies, except such as are used for repairs or renewals of cars or equipment of cars.

Following is a list of some of the items chargeable to this account:

Batteries, dry, for electric bells in cars.	Lubricants.
Bell cord.	Matches.
Brooms, for cars.	Mops.
Brushes, for car washing.	Oil cans.
Brushes, for motors.	Pokers.
Buckets, for car washing.	Polish.
Candles.	Rags.
Chamois skins.	Register cord.
Chimneys, for headlights.	Shakers.
Coal hods, for cars.	Shovels.
Dusters.	Soap.
Fuel, for cars.	Sponges.
Fuses.	Stove blacking.
Hose, for car washing.	Tools.
Illuminating oil.	Trolley rope.
Incandescent lamps.	Waste.
Kindling.	Water, for car washing.
Lampwick.	

22. *Miscellaneous car-service expenses.*—All expenditures for secret inspection, transfers and tickets, conductors' books, punches, portable registers, tools for motormen, employees' badges and uniforms; cost of getting derailed cars on track and removing obstructions and wreckage; miscellaneous expenses of car houses, including fuel, light, water (except water used for car washing), and ice, and all other car-service expenses not otherwise provided for.

Water used for car washing should be charged to account No. 21.

Following is a list of some of the items chargeable to this account:

Badges, for employees.	Portable registers.
Brooms, for car houses.	Secret inspection expenses.
Buckets, for car houses.	Sprinkling cans.
Conductors' books.	Tickets.
Conductors' fare boxes.	Tools.
Conductors' punches.	Tools, for motormen.
Fire buckets.	Transfers.
Fire extinguishers.	Uniforms.
Fuel, for car houses.	Water (except water for car washing).
Hose, for car houses.	Wrecking expenses.
Ice, for ice water.	
Light (lanterns and fixtures, oil, lamp-wick, torches, candles, incandescent lamps, arc-light globes and carbons).	

22a. *Hired equipment.*—The rental of cars, equipment of cars, and other equipment.

23. *Cleaning and sanding track.*—All expenditures for cleaning, greasing, watering, sprinkling, and removing dirt from track, sanding track, including wages of men engaged in the work, cost of sand and of hauling, drying, and distributing same, cost of track brooms and other tools, curve grease, water for sprinkling and watering track, and all other supplies and expenses incident to the work.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness and wagons, water, sprinkling, and sand cars used in connection with this work should be charged to account No. 8.

This account should not include cost of sprinkling rendered necessary by repairs or construction of track or paving.

The cost of sprinkling street (except tracks) in front of or adjacent to company's property should be charged to account No. 32.

Following is a list of some of the items chargeable to this account:

Curve grease.	Shovels.
Fuel for drying sand.	Track brooms.
Sand.	Track brushes.
Sand dryer and parts.	Water.

24. *Removal of snow and ice.*—All expenditures for removal of snow and ice from tracks, whether done by the company or otherwise, including labor, material, tools, and expenses, cost of salt and of delivering same in car houses or bins, and the wages of men engaged in salting track and operating snowplows, sweepers, scrapers, etc.

The cost of feed and keep of horses used in connection with this work should be charged to account No. 30.

The cost of repairs and renewals of harness, wagons, salt cars, snowplows, sweepers, scrapers, and miscellaneous snow equipment used in connection with this work should be charged to account No. 8.

25. *Salaries of general officers.*—Salaries of president, vice-president, secretary, treasurer, auditor, general manager, assistant general manager, chief engineer, general superintendent, purchasing agent, and all other officers whose jurisdiction extends over the entire system.

26. *Salaries of clerks.*—The salaries of bookkeepers, cashiers, receivers, paymasters, stenographers, clerks employed in counting cash, tickets, and transfers, and all other clerks employed in the general office or elsewhere.

27. *Printing and stationery.*—All expenditures for printing, stationery, and stationery supplies, except as hereinafter provided.

The cost of printing tickets and transfers should be charged to account No. 22.

The cost of printing briefs and other legal papers should be charged to account No. 34 or 35.

The cost of printing signs, posters, and other advertising matter should be charged to account No. 31.

Following is a list of some of the items chargeable to this account:

Arm rests.	Paper cutters.
Binders.	Paper fasteners.
Blanks.	Paper files.
Blank books.	Paper weights.
Blotters.	Pencils.
Blotting paper.	Pencil erasers.
Carbon paper.	Pens.
Coin bags.	Penholders.
Copy (impression) books.	Penracks.
Copying brushes.	Pins.
Dating stamps.	Printing (except printing charged to accounts Nos. 22, 31, 34, 35).
Envelopes.	Rubber bands.
Eyelets.	Rubber stamps.
Eyelet punches.	Rulers.
Erasers.	Scrapbooks.
Hectographs.	Sealing wax.
Indexes.	Seals.
Ink.	Shears.
Inkstands.	Shipping tags.
Ink erasers.	Shipping tickets.
Letterpresses.	Short-hand books.
Mechanical calculators.	Sponges.
Mimnographs.	Sponge cups.
Money tags.	Tissue (impression) paper.
Money wrappers.	Typewriters.
Mucilage and brushes.	Typewriter supplies.
Numbering stamps.	Twine.
Oil paper.	Wastebaskets.
Paper (all kinds).	Wrapping paper.
Paper baskets.	
Paper clips.	

28. *Miscellaneous office expenses.*—The cost of office supplies, repairs and renewals of office furniture, wages of janitors, porters, and messengers, and all other office expenses.

The cost of printing, stationery, and stationery supplies should be charged to account No. 27, except as otherwise provided.

Following is a list of some of the items chargeable to this account:

Brooms.	Newspapers.
Brushes.	Periodicals.
Buckets.	Postage.
Chamois skins.	Soup.
Dusters.	Sponges.
Fuel.	Sprinkling cans.
Ice.	Towels.
Light.	Towel service.
Mops.	Water.

29. *Stores expenses.*—All salaries and expenses in connection with storerooms, including cost of sending material and supplies from general storeroom to branch storerooms, and the collecting of scrap material.

30. *Stable expenses.*—The cost of feed, keep, and shoeing of horses, and all other stable expenses.

This account should include the stable expenses of all horses, regardless of where they are used.

Replacing horses lost by death or worn out in service, depreciation in value of horses, and repairs and renewals of harness and vehicles should be charged to account No. 8.

Following is a list of some of the items chargeable to this account:

Bedding.	Horseshoeing supplies.
Blankets.	Horseshoeing (by contract).
Brooms.	Hose.
Brushes.	Hottlers, wages of.
Buckets.	Ice.
Chamois skins.	Light.
Currycombs.	Medicine.
Dusters.	Salt.
Feed.	Sponges.
Fire buckets.	Sprinkling cans.
Fire extinguishers.	Stablemen, wages of.
Fuel.	Veterinarian (salary or fees).
Horseshoers, wages of.	Water.

31. *Advertising and attractions.*—The cost of advertising of every description, including printing handbills, dodgers, posters, folders, etc., net expense of music, parks, park properties and resorts (after deducting all income from admittance fees, sale of privileges, etc.), and all donations made and other expenses incurred for the purpose of attracting travel.

32. *Miscellaneous general expenses.*—The cost of public telephone service, maintaining and operating private telephone system, telegrams, subscriptions, and donations (except those provided for in account No. 31), traveling expenses of general officers and others connected with general office, and contingent expenses connected with the general management not otherwise provided for.

33. *Damages.*—All expenditures on account of property damaged and persons killed or injured, salaries and expenses of claim agents, investigators, adjusters, and others engaged in the investigation of accidents and adjustment of claims, salaries, fees and expenses of

surgeons and doctors, nursing, hospital attendance, medical and surgical supplies, fees and expenses of coroners and undertakers, fees of witnesses and others, except lawyers' fees and court costs and expenses.

Following is a list of some of the items chargeable to this account:

Accident insurance premiums.	Doctors' fees or salaries.
Adjusters' expenses.	Funeral expenses.
Adjusters' salaries.	Hospital expenses.
Claim agents' expenses.	Investigators' expenses.
Claim agents' salaries.	Investigators' salaries.
Coroners' fees and expenses.	Medical supplies.
Damage claims for ejectment from cars.	Nurses' expenses.
Damage claims for electrolysis.	Nurses' fees.
Damage claims for horses killed or injured.	Premiums for accident insurance.
Damage claims for persons killed or injured.	Surgeons' expenses.
Damage claims for property damaged.	Surgeons' fees.
Damage claims for wagons or vehicles damaged.	Surgeons' salaries.
Doctors' expenses.	Surgical supplies.
	Undertakers' expenses.
	Undertakers' fees.
	Witnesses' expenses.
	Witnesses' fees.

34. *Legal expenses in connection with damages.*—All legal expenses incurred in connection with the defense or settlement of damage claims.

The compensation of the general solicitor or counsel and other attorneys engaged partly in the defense and settlement of damage suits and partly in other legal work should be apportioned between this account and account No. 35.

The term "legal expenses" should be understood to include the salary of general solicitor or counsel, salaries, fees, and expenses of attorneys, fees of court stenographers, unless included in court costs, cost of law books, printing of briefs, court records, and other papers, court costs, expenses connected with taking depositions, and all other court expenses.

35. *Other legal expenses.*—All legal expenses except those incurred in connection with the defense or settlement of damage claims.

The compensation of the general solicitor or counsel and other attorneys engaged partly in the defense and settlement of damage suits and partly in other legal work should be apportioned between this account and account No. 34.

36. *Rent of land and buildings.*—All rents paid for land and buildings used in the operation of the road.

37. *Rent of tracks and terminals.*—All rents paid for tracks and terminals, bridge rentals, and tolls. The word "terminals" is not meant to refer to depots, car houses, or other buildings at the termini of the road. Rents for these should be charged to account No. 36.

38. *Insurance.*—The cost of fire and boiler insurance.

Wages, supplies, and expenses incident to electric service not included in any of the above items.—Amounts are to be reported for railway companies that sell electric current for light or power. Include all operation and maintenance expense incident to the generation and sale of electric current that has not been included in the answer to any of the other inquiries.

The following alphabetical list of items chargeable to operating expense accounts of electric railways shows the account, or accounts, to which each item is chargeable. The purpose of this list is that it may serve as a guide in the use of the classification of operating expense accounts recommended by the American Street and Interurban Railway Accountants' Association, and bring about a standard method of making charges. It is not a complete list of all items chargeable to the operating expense accounts of electric railway companies, but is an index of many and perhaps most of such items.

Item.	Accounts chargeable.
Accident insurance premiums.....	33
Adjusters' expenses and salaries.....	33
Advertising.....	31
Aids.....	16
Ammeters (electric plant).....	8
Architects.....	8
Are lights (light).....	1, 2, 3
Are-light carbons (light).....	1, 2, 9, 14, 22, 28, 29, 30
Are-light fixtures (light).....	1, 2, 3
Are-light globes (light).....	1, 2, 9, 14, 22, 28, 29, 30
Armatures and parts.....	6, 7
Armature winders (mechanics).....	6, 7, 9
Arm rests.....	27
Ash-conveying machinery (steam plant).....	4
Assistant division superintendents.....	16
Assistant general manager.....	28
Attorneys' expenses, fees, and salaries.....	34, 35
Attractions for promoting travel.....	21
Auditor.....	28
Awning.....	3
Axles, car.....	6, 8
Babbitt metal.....	4, 5, 7, 9
Badges, employees.....	22
Ballast.....	1
Batteries for electric bells in cars.....	21
Batteries, storage (electric plant or cars).....	6, 7
Bearings for electric equipment of cars.....	7
Bedding (stable).....	30
Bells, cars.....	6
Bell cord.....	21
Bell-cord fixtures.....	6
Belts for steam plant.....	4
Belts for shops.....	9
Belt fixtures.....	4, 9
Belt tighteners.....	4, 9
Binders (office).....	27
Blacksmiths (mechanics).....	1, 2, 3, 4, 5, 6, 7, 8, 9
Blank books.....	27
Blank forms.....	27
Blankets (stable).....	30
Blatters.....	27
Blotting paper.....	27
Boiler compounds.....	9, 14
Boiler fittings.....	4, 9
Boiler inspection (city or insurance companies).....	9, 14
Boiler-room employees (power plant).....	10
Bolts.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Bolt ends.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Books (blank books).....	27
Bookkeepers.....	28
Boosters (electric plant).....	8
Boxes for lightning arresters.....	2
Brass, rails.....	1
Brakes (hand or power).....	6, 8
Brake appliances (hand or power).....	6, 8
Brake shoes.....	6, 8
Brasses (car brasses).....	6, 7, 8
Brass fixtures (cars).....	6, 8
Brass trimmings (cars).....	6
Brick.....	1, 3
Bridges.....	1
Bridge regals.....	37
Bridge tolls.....	37
Briefs (printing of law briefs).....	34, 35
Brooms, coat.....	9, 14, 21, 22, 28, 29, 30
Boilers, steam plant.....	4
Boilers, shop.....	9
Boiler appliances.....	4, 9
Boiler cleaners.....	9, 10
Brooms, stable.....	30
Brooms, track.....	23
Brushes for car washing.....	21
Brushes, flye.....	14
Brushes for generator.....	14
Brushes, horse.....	30
Brushes (cars or electric equipment of cars).....	21
Brushes, scrubbing.....	9, 14, 21, 22, 28, 29, 30
Brush holders and parts (electric equipment of cars).....	7
Buckets.....	9, 14, 21, 22, 28, 29, 30
Buggies.....	8
Buggies (material or repair parts).....	8
Builders' hardware.....	3
Building material.....	3
Building permits.....	3
Bumpers, lens.....	6, 8
Cables, switchboard.....	5
Calculators, mechanical.....	27
Candles (light).....	1, 2, 9, 14, 21, 22, 28, 29, 30
Canvas or duck for cars.....	6, 7, 8
Carbons for are lights (light).....	1, 2, 9, 14, 22, 28, 29, 30
Carbon paper.....	27
Carpenters (mechanics).....	1, 2, 3, 4, 5, 6, 7, 8, 9
Cars, baggage.....	6
Cars, express.....	6
Cars, freight.....	6
Cars, mail.....	6

Item—Continued.	Accounts chargeable.	Item—Continued.	Accounts chargeable.
Cars passenger.....	6	Donations, other than to attractions.....	22
Cars private.....	6	Draft machinery.....	4,9
Cars salt.....	8	Draftsmen.....	1,2,3,4,5,6,7,8,9
Cars sand.....	8	Drains.....	1,3
Cars sprinkling.....	8	Drawings for cars.....	6,8
Cars supply.....	8	Druck or canvas for cars.....	6,7,8
Cars water.....	8	Dusters, leather.....	9,14,21,22,28,29,30
Cars work.....	8	Economizers steam plant.....	4
Car cleaners.....	20	Electric heaters, for cars.....	6
Car curtains.....	6	Electric sweepers.....	6
Car-curtain fixtures.....	6	Electric cars (mechanics).....	2,3,5,6,7,8,9
Car couples (labor).....	19	Electrolysis.....	33
Car-house employees.....	20	Emergency cloth.....	1,2,3,4,5,6,7,8,9,14
Car-house foreman.....	20	Employees.....	(Indexed by occupation.)
Car inspectors.....	20	Engineers (chief engineers, civil, electric, mechanical).....	25
Car oilers.....	20	Engineers, chief of power plant.....	10
Car platers.....	20	Engineers (civil, electric, mechanical).....	1,2,3,4,5,6,7,8,9
Car seats.....	6	Engineers in power plant or shop.....	9,10
Car-seat coverings.....	6	Engines (steam plant or shop).....	4,9
Car-seat fixtures.....	6	Engine appliances.....	4,9
Car-service employees.....	19	Engine fixtures.....	4,9
Car shifters.....	20	Engine parts.....	4,9
Car signs.....	6	Envelopes.....	27
Car-sign fixtures.....	6	Erasers.....	27
Car springs.....	6	Excavations for buildings.....	3
Car steps.....	6	Expenses, contingent.....	32
Car stoves.....	6	Expenses, deposits.....	34,35
Car-stove firemen.....	20	Expenses, storefront.....	29
Car-stove fixtures.....	6	Exhaust valves.....	27
Car wiring.....	7	Exhaust punches (office).....	27
Carts.....	8	Exhaust valves.....	6
Carts (material or repair parts).....	8	Exhaust valves, conductors.....	22
Cashiers.....	26	Exhaust valves.....	6
Cement.....	1,2,3,4,5	Exhaust valves.....	9,14,21,22,28,29,30
Chairs for railroads.....	1	Exhaust valves.....	30
Chains and skids.....	9,14,21,22,28,29,30	Exhaust valves.....	2
Chandeliers.....	2,9	Exhaust valves.....	2
Chief engineers, civil, electrical, mechanical.....	25	Exhaust valves (electric plant).....	5
Chief engineers (of power plant).....	10	Exhaust valves, underground.....	2
Chimneys for headlights.....	21	Exhaust valves.....	5,7
Cinders for ballast.....	1	Exhaust valves (buildings and inclosures).....	3
Circuits (heat, light, power) for cars.....	7	Exhaust valves.....	31
Circuit breakers (electric plant or cars).....	5,7	Exhaust valves, right-of-way.....	1
Cisterns.....	3	Exhaust valves and parts (cars).....	6,8
Claim agents' expenses and salaries.....	33	Exhaust valves (steam plant or shop).....	4,9
Clamps for poles.....	2	Exhaust valves.....	9,14,22,28,29,30
Clamps for welding rail joints.....	1	Exhaust valves (steam plant or shop).....	4,9
Clerks.....	1,2,3,4,5,6,7,8,9,26,29	Exhaust valves.....	9,14,22,28,29,30
Clinkers (steam plant or shop).....	4,9	Exhaust valves (power plant).....	10
Coal for heating.....	1,2,9,21,22,23,28,29,30	Exhaust valves (car stoves).....	20
Coal for power.....	11	Exhaust valves, track (rail fastenings).....	1
Coal-conveying machinery (steam plant).....	4	Exhaust valves for buildings.....	3
Coal hoists (for car stoves).....	21	Exhaust valves for cars.....	6
Coal passers (steam plant).....	10	Exhaust valves.....	31
Coal bins.....	27	Exhaust valves (blacksmith shop).....	9
Coke for heating.....	1,2,9,21,22,23,28,29,30	Exhaust valves for car houses.....	20
Coke for welding rail joints.....	1	Exhaust valves, blank.....	27
Commutators and parts (electric plant or cars).....	3,7	Exhaust valves for buildings.....	3
Condensers (steam plant).....	4	Exhaust valves, motor.....	7
Conductors (of revenue cars).....	17	Exhaust valves.....	1,2,3,4,5,6,7,8,9,11,13,14,21,22,23,24,27,28,30
Conductors for underground trolley.....	2	Exhaust valves, track (special work).....	1
Conductors' books.....	22	Exhaust valves for power.....	11
Conductors' fare boxes.....	22	Exhaust valves for car stoves.....	21
Conductors' punches.....	22	Exhaust valves.....	33
Conduits.....	2	Exhaust valves (boiler).....	4,9
Contacts (for surface-contact roads).....	2	Exhaust valves (cars).....	21
Contact boxes (for surface-contact roads).....	2	Exhaust valves.....	1,2,3,4,5,6,7,8,9,14
Contact shoes (for surface-contact cars).....	7	Exhaust valves for fuel for power.....	11
Contact shoes (for third-rail cars).....	7	Exhaust valves for electric line.....	2
Contingent expenses.....	32	Exhaust valves (cars).....	6
Controllers and parts (cars).....	7	Exhaust valves (electric equipment of cars).....	7
Copying (impression) books.....	27	Exhaust valves and parts.....	7
Copying brushes.....	27	Exhaust valves.....	25
Cord bell.....	21	Exhaust valves, assistant.....	25
Cord for electric line.....	2	Exhaust valves, general.....	34,35
Cord, register.....	21	Exhaust valves, superintendent.....	25
Cord, trolley.....	21	Exhaust valves and parts (electric plant).....	5
Coroners' expenses and fees.....	33	Exhaust valves (power plant).....	10
Cotters.....	6,7,8,9	Exhaust valves.....	3,6,8
Counsel.....	34,35	Exhaust valves for arc lamps (light).....	1,2,9,14,22,28,29,30
Court costs.....	34,35	Exhaust valves for car repairs.....	6,8
Court records.....	31,33	Exhaust valves for cars.....	6,8
Court stenographers' fees.....	31,35	Exhaust valves for buildings.....	6,8
Cranes (steam plant, shop, car houses).....	4,9	Exhaust valves for track.....	1
Crews operating snowplows.....	24	Exhaust valves for furnaces (steam plant or shop).....	4,9
Crews operating electric sweepers.....	24,29	Exhaust valves for track.....	1
Cross-arms, iron, for poles.....	2	Exhaust valves for power plant.....	13
Cross-arms, wood, for poles.....	1	Exhaust valves for cars.....	21
Crossing, track (special work).....	1	Exhaust valves for trucks.....	23
Crossings, electric line.....	2	Exhaust valves for wagons and other vehicles.....	30
Crossovers, track (special work).....	1	Exhaust valves, track (special work).....	1
Culverts.....	1	Exhaust valves.....	31
Currycombs.....	30	Exhaust valves for electric line.....	2
Curves, track (special work).....	1	Exhaust valves (buildings).....	3
Curve grease.....	23	Exhaust valves (buggy, cart, wagon).....	8
Cut-out boxes and parts (cars).....	7	Exhaust valves (material or repair parts).....	8
Damage claims, ejectment from cars.....	33	Exhaust valves.....	1,2,3,4,5,6,7,8,9,11,13,14,21,22,23,24,27,28,29,30
Damage claims, electrolysis.....	33	Exhaust valves, hauling of salt.....	24
Damage claims, horses injured or killed.....	33	Exhaust valves, headlights and parts (cars).....	6,8
Damage claims, persons injured or killed.....	33	Exhaust valves, headlight tenders.....	20
Damage claims, property damaged.....	33	Exhaust valves, heat circuit for cars.....	7
Damage claims, vehicles damaged.....	33	Exhaust valves, heaters, electric, for cars.....	6
Dashes and parts (cars).....	6,8	Exhaust valves, heaters, feed-water.....	4,9
Dating stamps (office).....	27	Exhaust valves, heating apparatus for buildings.....	3
Depreciation of horses.....	8	Exhaust valves, heating fixtures for buildings.....	27
Deposition expenses.....	34,35	Exhaust valves, hectographs.....	27
Division superintendents.....	16	Exhaust valves, hired power.....	15
Division superintendents, assistant.....	33	Exhaust valves, hoists (steam plant, shop or car house).....	4,9
Doctors' expenses, fees, and salaries.....	31	Exhaust valves, horses, depreciation of.....	8
Dodgers (printing).....	31		
Donations to attractions.....	31		

Item—Continued.	Accounts chargeable.
Horses, replacement of.....	2
Horseshoeing.....	30
Horseshoeing supplies.....	30
Horseshoers.....	30
Hose.....	9, 14, 21, 22, 28, 29, 30
Hospital expenses (persons injured).....	31
Hostlers.....	30
Ice for buildings.....	1, 2, 9, 14, 21, 28, 29, 30
Ice for ice water.....	1, 2, 9, 14, 21, 28, 29, 30
Impression paper.....	27
Impression books.....	27
Incandescent lamp fixtures (light).....	1, 2, 9, 14, 21, 28, 29, 30
Incandescent lamps (light).....	1, 2, 9, 14, 21, 28, 29, 30
Indexes, surface.....	27
Injectors, steam.....	4, 9
Ink.....	27
Inkstands.....	27
Inspectors, secret.....	27
Inspectors, not secret.....	16
Inspectors, cars.....	30
Inspectors, motors.....	31
Insulating material for electric equipment of cars.....	1, 2, 9, 14, 21, 28, 29, 30
Insulating tape.....	1, 2, 9, 14, 21, 28, 29, 30
Insulators, overhead.....	1, 2, 9, 14, 21, 28, 29, 30
Insulators, third rail.....	1, 2, 9, 14, 21, 28, 29, 30
Insulators, underground trolley.....	1, 2, 9, 14, 21, 28, 29, 30
Insurance, accident.....	2, 3
Insurance, boiler.....	3, 4
Insurance, fire.....	3, 4
Investigators' expenses and salaries.....	3, 4
Iron.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Janitors.....	27
Joints, track (not welded).....	1
Joints, track (welded).....	1
Kindling wood (fuel for heating).....	1, 2, 9, 14, 21, 28, 29, 30
Laborers.....	(Indexed by occupation.)
Labor, manual (maintenance accounts).....	1, 2, 3, 4, 5, 6, 7, 8, 9
Lamps, incandescent (light).....	1, 2, 9, 14, 21, 28, 29, 30
Lamp tenders.....	30
Lampwick (light).....	1, 2, 9, 14, 21, 28, 29, 30
Lanterns and fixtures (light).....	1, 2, 9, 14, 21, 28, 29, 30
Laths.....	3
Lathes.....	9
Law books.....	34, 35
Law briefs.....	34, 35
Legal expenses, in connection with damages.....	34
Legal expenses, other than damages.....	35
Legal papers.....	34, 35
Letter books.....	27
Letterpress.....	27
Life guards for cars.....	6, 8
Light lanterns, oil, wick, torches, candles, incandescent lamps, arc-light globes and carbons.....	1, 2, 3, 4, 14, 21, 28, 29, 30
Light circuits for cars.....	2
Lighting apparatus for buildings.....	2
Lighting fixtures for buildings.....	2
Lightning arresters and parts, line, electric plant, cars.....	2, 6, 7
Line for buildings.....	1
Lipson.....	1
Lime oil (paint).....	2, 4, 6, 7
Lubricants.....	9, 13, 24, 30
Lubricators for engines.....	1, 9
Lumber.....	1, 3, 6, 8, 9
Machinery, ash-conveying.....	4
Machinery, coal-conveying.....	4
Machinery, mechanical draft.....	4
Machinery, waterpower.....	4
Machinists (mechanics).....	1, 2, 3, 4, 5, 6, 7, 8, 9
Magnets for surface-contact roads.....	2
Manager (assistant general manager).....	25
Manager (general manager).....	25
Manhole covers for underground trolley.....	1
Manhole covers for surface-contact roads.....	2
Manhole frames for underground trolley.....	1
Manhole frames for surface-contact roads.....	2
Matches.....	9, 14, 21, 28, 29, 30
Material for buildings.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Material not otherwise specified.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Mechanics (blacksmiths, carpenters, painters, machinists, electricians, armature winders, motor repairers).....	1, 2, 3, 4, 5, 6, 7, 8, 9
Medical supplies (damages).....	33
Medicine for horses.....	30
Messengers.....	28
Meters, water.....	3, 4, 9
Mimeographs.....	27
Mirrors for cars.....	4
Molds for welded joints.....	1
Money tags.....	27
Money wrappers.....	27
Mops.....	9, 14, 21, 28, 29, 30
Motor men (of revenue cars).....	13
Motor men (of work cars).....	1, 2, 3, 24, 29
Motor repairers.....	2
Motors, complete, for cars.....	2
Motor frames.....	2
Motor inspectors.....	20
Motors and motor parts for shop.....	2
Mucilage.....	27
Mudlugs, brushes.....	27
Muscle for promoting travel.....	31
Nails.....	1, 3, 6, 9
Newspapers.....	28
Numbering stamps (office).....	27
Nurses' expenses and fees (damage cases).....	34
Nuts, for bolts.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Nut locks, for track (rail fastenings).....	1
Officers.....	(Indexed by titles or positions.)
Office furniture, repairs and renewals of.....	28
Oil for fuel for power.....	11
Oil, lubricating.....	9, 13, 21, 30
Oil for light.....	1, 2, 9, 14, 21, 28, 29, 30

Item—Continued.	Accounts chargeable.
Oil boxes for cars.....	6, 8
Oil cans.....	11, 21
Oil paper (office).....	27
Others, car.....	20
Others, power plant.....	10
Others, trolley.....	10
Oiling devices for engines.....	4, 9
Packing for engines.....	9, 14
Painting material (linseed oil, turpentine, varnish, white lead, painters brushes and supplies).....	2, 3, 6, 8
Painters (mechanics).....	2, 3, 6, 8
Paper (writing paper, wrapping paper).....	27
Paper baskets.....	27
Paper clips.....	27
Paper cutters.....	27
Paper fasteners.....	27
Paper files.....	27
Paper weights.....	27
Parks and park properties for promoting travel.....	31
Pavers (laborers).....	1, 2, 3
Paving in connection with buildings.....	1, 2, 3
Paving in connection with electric line.....	1, 2, 3
Paving in connection with tracks.....	1, 2, 3
Paving material.....	1, 2, 3
Pedestals for cars.....	1, 2, 3
Pencils.....	27
Pencil erasers.....	27
Pens.....	27
Penholders.....	27
Perforators.....	27
Perforations.....	27
Permits for buildings.....	27
Pig iron for welding joints.....	27
Pilots for cars.....	27
Pilons for electric equipment of cars.....	27
Pins.....	27
Pins, iron, for cross-arms.....	27
Pins, wood, for cross-arms.....	27
Pipe covering (steam pipe).....	4, 9
Pipes, drain.....	1, 3
Pipe fittings, steam.....	1, 3
Pipes, gas.....	3
Pipes, sewer.....	3
Pipes, water.....	3
Piping, steam.....	4, 9
Pits, in car houses and shops.....	3
Plaster.....	3
Plows for underground trolley cars.....	27
Plumbing.....	27
Pokers for car stoves.....	27
Poles, iron or wood, for electric line.....	2, 3
Pole fixtures.....	2, 3
Pole tops for iron poles.....	2, 3
Polish.....	9, 14, 21, 28, 29, 30
Portable registers.....	27
Posters.....	27
Postage.....	27
Postage stamps.....	27
Power circuits, cars.....	27
Power plant labor (boiler room, not otherwise specified).....	10
Power plant labor (engine room, not otherwise specified).....	10
President.....	25
Printing (except transfers, tickets, dodgers, posters, handbills, folders, law books, law briefs, legal papers, charged to accounts 27, 31, 34, 35).....	27
Printing (advertising matter).....	31
Printing (briefs).....	34, 35
Printing (dodgers).....	31
Printing (folders).....	31
Printing (handbills).....	31
Printing (legal papers).....	34, 35
Printing (posters).....	31
Printing (tickets).....	31
Printing (transfers).....	31
Rails.....	4, 8
Ramps, steam.....	1, 3
Receivers, conductors.....	27
Purchasing agent.....	25
Purifiers (steam plant).....	13, 21
Rags.....	1
Rails for track.....	1
Rail bonds, electric line.....	1
Rail braces, track (rail fastenings).....	1
Rail chairs, track (rail fastenings).....	1
Rattan for sweepers.....	3
Receivers (employees counting receipts).....	27
Receivers for steam plant.....	4
Register card.....	21
Registers (stationary fare registers).....	6
Removing snow.....	27
Rent of bridges.....	31
Rent of land and buildings.....	31
Rent of tracks and terminals.....	27
Replacing horses.....	2
Resorts for promoting travel.....	31
Rheostats for electric plant or cars.....	3, 7
Rivets.....	1, 2, 3, 4, 5, 6, 7, 8, 9
Roadmasters.....	16
Rod rollers.....	3
Roofing material.....	21
Rope (trolley rope).....	21
Rubber bands.....	27
Rubber stamps.....	27
Rulers.....	27
Salaries.....	(Indexed by titles or positions.)
Salt.....	24, 30
Sand.....	1, 2, 3, 4
Sand boxes attached to cars.....	6, 8
Sand dryer and parts, for drying sand.....	1, 2, 3, 4, 5, 6, 7, 8, 9, 11
Sandpaper.....	1, 2, 3, 4, 5, 6, 7, 8, 9, 11
Scales, platform.....	27
Scrapbooks.....	27

Item—Continued.	Accounts chargeable.
Screens, wire (for buildings).....	3
Screens, wire (for cars).....	3
Screws.....	1,2,3,4,5,6,7,8,9
Seals.....	27
Sealing wax.....	27
Seats for cars.....	6
Seat coverings for cars.....	6
Seat fixtures for cars.....	25
Secretary.....	25
Secret inspection.....	4
Separators (steam plant).....	4
Sewer connections for underground trolley.....	4
Sewer connections for steam plant.....	4
Sewer traps for underground trolley.....	3
Sewering for buildings.....	3
Shafting for steam plant or shop.....	1,2
Shafts for motors.....	21
Shakers for car stoves.....	21
Shavers for office.....	21
Shelving for buildings.....	21
Shipping tags.....	21
Shipping tickets.....	21
Shorthand books.....	21
Shovels for track cleaning.....	21
Shovels for removing snow.....	21
Shovels for car stoves.....	21
Sidewalks.....	3
Signals and signalling apparatus.....	2
Signs and sign fixtures for cars.....	2
Slot rails for underground trolley.....	1
Snowplows.....	1
Snowplow crews.....	2
Snow scrapers.....	2
Snow shovels.....	2
Snow sleds.....	2
Snow sweepers.....	2
Soap.....	9,14,21,22,23,29
Solder and soldering salts for electric line.....	2
Solicitors, general.....	34,35
Spikes.....	1,2
Sponges.....	9,14,21,22,23,29
Sponge cups for office.....	27
Sprinkling cans.....	9,14,21,22,23,29
Stablemen.....	30
Stacks, steam plant or shop.....	4,9
Starters.....	18
Steam fittings for steam plant or shop.....	4,9
Steel.....	1,2,3,4,5,6,7,8,9
Stenographers.....	10
Stokers, mechanical.....	1,2,3
Stone.....	1,2,3
Storage batteries for electric plant.....	3
Storage batteries for cars.....	2
Storekeepers.....	29
Storeroom clerks.....	29
Storeroom employees.....	29
Storeroom expenses.....	29
Stoves for cars.....	4
Stove blacking for car stoves.....	21
Stove fixtures for cars.....	2
Subscriptions to attractions.....	31
Subscriptions other than to attractions.....	31
Subways.....	1,2,3,4,5,6,7,8
Superintendents.....	7,8
Superintendents, division.....	15
Superintendents, assistant division.....	15
Superintendents, general.....	15
Surgeons' expenses, fees, and salaries.....	33
Surgical supplies.....	33
Suspensions for electric line.....	2
Sweepers, electric.....	2
Sweeper crews.....	21
Switches, track (special work).....	1
Switches, overhead, electric line.....	5
Switches for electric plant.....	5
Switchboards for electric plant.....	5
Switchboard tenders.....	10
Switch mates, track (special work).....	1
Switch tenders.....	10
Tanks (steam plant).....	4
Tape, insulating.....	2,7
Teamsters.....	1,2,3,4,5,6,7,8,9
Telegrams.....	1,2,3,4,5,6,7,8,9
Telephone system, private.....	1,2,3,4,5,6,7,8,9
Telephone service, public.....	1,2,3,4,5,6,7,8,9
Terminals for electric line.....	1,2,3,4,5,6,7,8,9
Terminals for electric equipment of cars.....	1,2,3,4,5,6,7,8,9
Terminals, feeder.....	1,2,3,4,5,6,7,8,9
Third rails (third-rail system).....	2
Tickets, printing of.....	22
Ties.....	1
Tie plates (rail fastenings).....	1
Tie-rods (rail fastenings).....	1
Timekeepers.....	1,2,3,4,5,6,7,8
Tissue (impression) paper.....	1,2,3,4,5,6,7,8
Tolls, bridge.....	1,2,3,4,5,6,7,8
Tools, hand.....	1,2,3,4,5,6,7,8,9,10,11,12
Tools, for motormen.....	1,2,3,4,5,6,7,8,9,10,11,12
Tools (machine tools in shop).....	1,2,3,4,5,6,7,8,9,10,11,12
Torches (light).....	1,2,3,4,5,6,7,8,9,10,11,12
Towels.....	2
Towel service.....	2
Track brooms for track cleaning.....	21
Track cleaners.....	21
Trail-car couplers.....	12
Transfers, printing of.....	12
Transfer agents.....	12
Transformers (electric plant).....	12
Traveling expenses of general officers and others connected with the general office.....	12
Treasurer.....	12

Item—Continued.	Accounts chargeable.
Trestles.....	1
Trolley bases.....	7
Trolley forks.....	7
Trolley oilers.....	20
Trolley poles for cars.....	7
Trolley rope.....	21
Trolley tenders (of revenue cars).....	18
Trolley tenders (of work cars).....	1,2,3,4,5,6,7,8,9
Trolley wheels and parts (cars).....	1,2,3,4,5,6,7,8,9
Trucks for cars.....	6,8
Truck frames and parts, for cars.....	6,8
Tunnels.....	1
Turpentine (paint).....	2,3,6,8
Turn-outs, track (special work).....	1
Twine (office).....	27
Typewriters and typewriter supplies.....	27
Undertakers' expenses and fees.....	28
Uniforms.....	28
Varnish (paint).....	3,6,8
Vehicles (buggies, carts, snow scrapers, snow sleds, wagons, work cars).....	3
Ventilating apparatus and fixtures.....	3
Veterinarian.....	30
Vice-president.....	25
Wages..... (Indexed by occupation).....	5
Wagons.....	5
Washers (not car washers).....	1,2,3,4,5,6,7,8,9
Waste.....	9,13,21
Wastebaskets.....	27
Waste cans.....	14
Watchmen.....	1,2,3,4,5,6,7,8,9
Water.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water barrels.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water connections.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water coolers.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water dippers.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water for steam power.....	12
Water for operating water-power machinery.....	12
Water-gauge glasses.....	14
Water meters.....	3,4,9
Water pumps.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water-power machinery.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Water tenders for steam plant.....	10
Water tenders for water-power plant.....	10
Welding compound.....	8
Wells.....	8
Wheels for cars.....	0,8
Wheels, trolley.....	2
White lead (paint).....	2,3,6,8
Wire for buildings.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
Wire, feed.....	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100
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INQUIRY 20—INCOME ACCOUNT.

Give the actual amounts carried on the income-account statement of the company. This may in some cases include bookkeeping items of income and expenses for the year and therefore need not in every instance agree with an actual cash statement for the year.

Passengers.—Include cash fares, sale of tickets and commutation books, and all sources of income from passengers.

Chartered cars.—It is a practice on many street railways to hire out cars for special travel purposes. These are usually known as "chartered" cars, a definition which includes parlor cars, observation cars, theater cars, funeral cars, etc. For all work of this class it is the custom to make a special and separate rate, and the roads doing this business should have no difficulty in giving the income from it.

Freight, mail, and express.—Some electric interurban roads carry large quantities of freight and express matter. If it is impossible to ascertain the exact amount of each class of income, obtain the total for the three items and prepare a careful estimate for the segregation.

Sale of electric current.—Be careful to include the income from the sale of current to other public-service corporations. If a combined report is prepared for railway and light and power plant, the total income reported in inquiry 26 should also be reported in answer to this question.

Interest on bonds and dividends on stock of other electric railways.—It is necessary to show the total net amount of interest on funded

debt and of dividends paid by street-railway companies to the outside public as distinguished from the gross interest and dividends, part of which goes to other street or electric railways. For this purpose the income from interest on bonds of other street or electric railway companies and the amount received as dividends on their stocks must be reported in answer to this question.

Income from other permanent investments.—Railway companies may own securities of public-service corporations (other than electric railways), also industrial or municipal securities. It is desired to secure a separate statement of the income, if any, from such sources.

Miscellaneous.—This item should include all amounts received from sources other than those enumerated, such as income from advertising, pleasure resorts, interest on deposits, etc. The principal items must be enumerated separately. The total income reported must be the gross income of the company for the year.

Miscellaneous taxes.—Include special taxes, such as car licenses, special taxes for police service at street crossings, etc., but in such cases a note must be made on the schedule describing the tax or license.

Interest paid or due for the year.—When funded debt is shown as a liability in answer to inquiries 21 and 22, interest should be reported as paid on funded debt or proper explanation made under "remarks" on the last page of the schedule. In like manner if real-estate mortgages and floating debt are shown as a liability under inquiry 21, interest should be reported or explanation made.

INQUIRY 21.—BALANCE SHEET.

This condensed statement must balance and show the financial condition of the company on December 31, 1907, or the last day of the year for which the report is made. Any large items which would come under the head of "sundries" should be stated specifically.

The combined balance sheets of all roads in the country must result in showing the total capital stock and funded debt of both operating and leased roads, therefore the proportion of these securities which are owned by street or electric railways should be shown separately, so that a net figure for each kind of capital can be presented. For this purpose it is necessary that the amount of stocks of other street or electric railway companies and the amount of bonds of other street or electric railway companies owned by the company reporting must be reported in answer to the second question under "assets."

Some companies may consider their own stock or bonds held in the treasury as an asset, but in making up the balance sheet such securities should be treated as not issued and should be omitted from both sides of the balance sheet statement, giving full explanation under "remarks."

If there is a profit and loss deficit, or if a large amount is reported for "other permanent investments," the reason for the loss and the nature of the investments should be given under "remarks." Items such as "purchase of completed road" or "payment for franchise" must be included as "cost of construction, equipment, and real estate," and not as "sundries" or "other permanent investments." "Sundries" is intended to include only the minor elements of accounts.

If the entire stock issue of a subsidiary company is owned by the operating company and a separate supplementary lessor report is not prepared for the subsidiary company (see instructions, next column), the cost of said securities to the operating company should be considered as part of the cost of construction and equipment rather than as "stocks and bonds of other electric railways." In like manner the cost of securities of an electric light and power plant owned and operated by a railway company and included in a combined report should be considered as cost of construction and equipment. On the other hand, if a railway company holds securities of an electric light and power plant but does not entirely own or directly operate it, such securities should be reported as "other permanent investments."

INQUIRY 22.—CAPITAL STOCK, BONDS, DIVIDENDS, AND INTEREST.

Account for the entire amount of stock and bonds authorized by charter, and the amount outstanding on the last day of the year covered by the report. Give full amounts of dividends declared and interest paid or due for the year. The rate of interest should always be stated, even though no interest may have been paid or due for the year. In some cases companies have been reorganized or consolidated, and the new company has issued stock, the new stock being accepted by the holders of the original stock which was surrendered to the new company. The new company may also issue bonds and assume the debt represented by the bonds of the original companies, which may or may not be retired. In such cases there may be no cash realized on either the stock or bonds of the new company, but the amount of stock and bonds issued by the new company, and also the stock and bonds outstanding of the original company must be given. The amounts of the old and new companies should be given separately. The agent should attach a memorandum to the schedule, giving a full explanation of the issues of the stock and bonds of both companies.

INQUIRY 23. EMPLOYEES, SALARIES, AND WAGES.

The salaries and wages reported here will also be included in the amounts reported for the different items, under inquiry 19, "operating expenses," but this statement is required in order to obtain the number and wages for each class of employees. Account for all persons employed by the company, both in the management and in the operation of the road. Give the number of officers who receive salaries (not the number of stockholders) and the total amount of their salaries. Report separately the number and wages of conductors, motormen, and other classes of employees specified. There should be no difficulty in securing this information for the road of ordinary size, but it may be that the large companies keep an itemized pay roll, the total only being carried forward from each week or month. In such cases it will be necessary either to add the pay roll of each week or month, for each class of employees, or to compute the aggregate for each class, using a pay roll for a representative week or month as the base. Results obtained by the latter method will be accepted. The average number employed during the year is the number that would be required, at continuous employment, for the twelve months.

If the road was in operation only a portion of the year, and for this or other reason the average number does not represent the number required to operate the road under normal conditions, the conditions must be explained and the number of each class required to operate the road under normal conditions given under "remarks."

INQUIRIES 24, 25, AND 26.—QUESTIONS FOR RAILWAYS WHICH OPERATE SEPARATE ELECTRIC LIGHT AND POWER PLANTS.

These inquiries, when considered in connection with their accompanying instructions and those in the schedule and page 547 of these instructions, should be readily understood and properly answered.

INQUIRIES 27 AND 28.—POLES PURCHASED DURING 1907, AND CROSS-TIES PURCHASED DURING 1907.

These inquiries comprise a part of the annual investigation of consumption of forest products and should be treated as separate and distinct from the census of electrical industries. They must not, however, be overlooked by the agent, and must be answered for every company.

SEPARATE SUPPLEMENTARY REPORTS FOR NONOPERATING LESSOR OR LEASED ROADS.

As stated on the title-page of the schedule, separate reports must be obtained for all street railways which are leased to operating companies, covering the data for inquiries 1 to 4, inclusive; 7, track; 18, cost of construction and equipment; 20, income account;

21, balance sheet; and 22, capital stock, bonds, dividends, and interest. The purpose is to present, in the financial accounts, a correct bookkeeping total of cost, income, expenses, etc., including the duplications which arise from the practice of leasing railway properties. The amount of such duplications will then appear under the respective inquiries in the schedules, and net amounts can be calculated.

Aside from the desirability of having such complete bookkeeping accounts it is essential to secure the statistics of leased roads separately in order to avoid error. Operating railway companies do not ordinarily keep accounts showing the cost of construction of leased roads, and certain schedules which profess to cover both operating and leased roads really include only the cost of construction and equipment for the operating road.

While agents may be able to prepare correct reports for the operating companies so far as the physical equipment and traffic features are concerned, it is very difficult to make a proper consolidation of the financial items. It requires an expert accountant to combine correctly figures of leased and operating roads, avoiding duplication.

While the figures for both operating and leased roads should be published separately, it will not do to calculate either the cost per mile of track or the capital liabilities per mile of track of either the operating or the leased roads separately, since in many cases the operating company spends large sums in improving leased lines which are not counted in the cost of such leased lines.

When the attempt is made to combine reports of operating and leased roads there should be an item of receipt in the income account, usually in the form of payments of guaranteed dividends and interest on stock and bonds received by the leased companies, equal in amount to the item for rentals paid under the head of expenses by the operating companies. The net income would then include the amount of rentals as well as the dividends and surplus of the operating company. Indeed, if the operating com-

pany and leased lines were to be treated strictly as one, both payments for rentals and receipts from rentals would be omitted. When separate reports of operating and leased companies are made and tabulated, rentals received in the totals will balance rentals paid, and total net income will include the dividends and surplus of both operating and leased companies, or the real profits of the business.

In the same way the item of interest on funded debt in the case of operating companies should include only interest on their own bonds. In many cases such companies assume directly the bonds of leased lines. The schedule should show the interest of the operating companies on their own debt and that on the debt of leased lines, but only the former must be charged as interest and the latter as "rent of leased lines and terminals." The rental received by leased companies will then be made to show the sum intended for interest on other bonds, and their expenditures will show a payment for such interest.

Operating companies often own part of the securities of leased companies. A correctly combined balance sheet of both operating and leased companies will show the total capital stock and funded debt of both, and over against this, under the head "stocks and bonds of other electric-railway companies," the amount of stocks and bonds held by the operating company.

Because of the complications above indicated it is evidently essential to correctness of data, and for the purpose of securing a net balance sheet and a net statement of capitalization, to insist on having separate supplementary reports for nonoperating lessor or leased companies.

There are comparatively few leased street railways, and the supplementary figures desired can be obtained with little difficulty. Reports for leased roads should accompany the report of the operating company, with the word "lessor" written on the upper right-hand corner of the title-page.

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